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BRIEFLY TOLD.

OBITUARY, MR. JOHN J. GRIFFIN.—The JOURNAL for October 31st contained a brief notice of the sudden death, on the evening of Saturday, October 22d, of Mr. John J. Griffin, of Philadelphia, Pa., who was widely known to the fraternity of gas makers. Our preliminary notification was coupled with the promise that in due time some account of the life of deceased would appear in our columns, and we herewith present the following accurate compilation of his career, for the main facts in which we are largely indebted to the courtesy of Mr. John Gribbel, for many years the associate of Mr. Griffin in their joint business of manufacturing gas meters.

Mr. John J. Griffin traced back, on both branches of the ancestral tree, to the sturdy Knickerbocker stock that dominated New York over two centuries ago. He was born in the old Griffin residence, on Essex street, this city, January 18th, 1829, and his education was acquired in the public school of the district. On leaving school, he elected to follow the trade of a machinist, and accordingly was apprenticed to the old Novelty Iron Works, the shops of which were then located at the foot of 11th street and East River—a point, by the way, where virtually, almost two score of years thereafter, he saw many busy days in the station meter rooms of the Mutual Gas Light Company. Having served his apprenticeship, he engaged with his brother-in-law, Mr. William B. Reynolds, in his day one of the leading contractors of the city, and to whom should be given the credit of introducing in New York the type of pavement known as the Belgian block. Some of the principal thoroughfares—notably Sixth and Eighth avenues—were paved under Mr. Griffin's supervision. In 1859, attracted by the possibilities of the gas business, and largely influenced in his decision by his knowledge of mechanics, he engaged in the business of manufacturing gas meters, under the firm name of John J. Griffin & Co., whose shops were in 37th street directly west of Sixth avenue. In 1869 he joined forces with Messrs. Harris & Co., of Philadelphia, and in 1871 the firm of Harris, Griffin & Co. was formed, which enjoyed a long and prosperous career in the shops at the corner of 12th and Brown streets, Philadelphia. In January, 1890, this partnership was dissolved—Mr. Andrew Harris, the senior partner, died some 10 years before—and Mr. Griffin formed the firm of John J. Griffin & Co., with shops at 1513 to 1519 Race street, Philadelphia. Here he remained in active business up to the time of his death, which, as before noted, occurred on the evening of October 22d.

A remarkable coincidence is seen in the fact that the last work done by deceased in a gas plant was performed, a day or so previous to his death, in the Mutual gas works, almost on the identical spot where he was taught his trade 50 years ago.

Mr. Griffin was elected to active membership in the American Gas Light Association on the occasion of the 1879 (Philadelphia) meeting, and served with earnestness and success on the special committee appointed to devise a standard plan of meter unions. He was also a frequent attendant at the meetings of the Association, and fully appreciated their effect for good on the industry. He held an associate membership, too, in the Western Association.

Seemingly, on the day of his death, he was enjoying his usual health. In fact, after a drive through Fairmount Park that afternoon, he was one of the most jovial of a merry family gathering at the home dinner table. In the evening, in company with his wife, he set out to call upon a friend, and while walking through Broad street, when directly in front of the house of the Columbia Club, he was seized with an attack of acute indigestion that rendered him quite helpless. He was brought into the Club parlors, and attended at once by a physician who happened to be spending the evening at the Club. Having prescribed a simple remedy that apparently relieved the sufferer, the physician retired in the belief that his patient would be completely restored in a short time. Mr. Griffin conversed with a friend, whom he met in the Club, and while thus engaged, without a sign or premonition, he passed away. Death resulted from cerebral appoplexy.

LIBRARY OF CONGRESS NOV 21 1892 SMITHSONIAN DEPOSIT.

The funeral services were held at his late residence, 2000 North 13th street, Philadelphia, on Wednesday, October 26th, and these were largely attended by representative men in the gas and allied industries, who had known him for years and held him in high esteem. A touching incident of the services was the appearance at the funeral of the men whom he employed, and who further accentuated their regard for him by subsequently forwarding to Mrs. Griffin a beautifully engrossed set of resolutions, expressive of their high esteem of Mr. Griffin as an employer and as a man. Some of these workmen had been in Mr. Griffin's service for upwards of 20 years.

Mr. Griffin's most remarkable traits were his unfailing cheerfulness and lightheartedness and his indomitable energy. At the time of his death he was, we believe, the senior active manufacturer in his line in America.

OUR OUTPUT COMPARISONS FOR THE FIRST HALF OF '91-92.—If delays are dangerous then our output comparisons for the first half of the years of 1891-92 are beyond redemption, but we can truthfully say that the blame is not ours. We have endeavored to impress upon the controllers at our test points that prompt returns to our inquiries would be appreciated greatly, in that we would the sooner be in a position to place before all the *exact* figures respecting the *growth* of the gas business for the period under review; but, to put it bluntly, our correspondents made haste slowly. Notwithstanding the discouraging circumstances, however, we kept pegging at it, whereupon we are now able to give the results of our compiling, and these we admit, and those who read the tables must join in the admission, are surprisingly gratifying, in that they show an astonishing increase. The test points were selected with our usual desire to secure a true average—the rough with the smooth, the small with the large. Circulars were mailed to 150 points, and the net result was the securing of 93 replies, which have been thus tabulated:

Date	Period.	Total Sendout.
1892.....	January to July.....	3,086,788,800 cu. ft.
1891.....	"	2,803,312,800 "
Increase in 1892.....		283,476,000 "

This increase works out to the percentage figure of 10.1, and looks to us to be a remarkable showing. For the corresponding return of 1891 (See JOURNAL, September 14, 1891) the increase, in percentage, figured out 9.7, which goes to show that the industry not only holds what we may term the normal rate of progression, but is absolutely disposed to make "a record" for each year. Imposing as is the gain in sendout, of itself, however, the gain in separate meters placed is still more marked—in this tabulation the figures stand for a net increase in the number of meters actually in use, in the one period, as against the other. The meter tabulation from the 93 companies is as follows:

Date.	Period.	No. Meters in Use.
1892.....	January to July.....	200,850
1891.....	"	181,344
Increase in 1892.....		19,506

This means a percentage increase of 10.7 for the period under review as against an increase of 8.3 per cent. for the corresponding period of a year ago. This, better than almost anything else that could be considered, goes to show that gas is year by year becoming more popular amongst the American people. The output figures exclude all gas supplied on public account, whether to street lamps or to public buildings, and have been made strictly on the face of the returns received. Our thanks are tendered to the gentlemen who favored us with replies to the questions, and they may rest assured that the confidence thus reposed in us has been zealously respected.

NOTES.—Mr. George D. Bill, the man at the helm of the Malden and Melrose (Mass.) Gas Light Company, recently constructed for himself at Malden a handsome residence, which undertaking, having come to the ears of some of the boys down East, caused them to "resolve" they would have something to say about how the Bill library should be furnished. In any event, on the 11th inst., quite a party invaded his home, bringing with them a handsome office desk and an equally handsome and comfortable reclining chair, which outfit was duly installed in the Bill library. As to the subsequent proceedings, we need only remark that the "Guild Choir" was in good voice, and that a typical New England time was heartily enjoyed.——The Board of Aldermen, of Richmond, Va., have voted an appropriation of $25,000 for the placing in the city gas works of an auxiliary water gas plant. It will be paid for by an issue of bonds to bear 4 per cent. interest.

[Concluded from page 698.]

[OFFICIAL REPORT.—EDITED BY THE SECRETARY.]

TWENTIETH ANNUAL MEETING OF THE AMERICAN GAS LIGHT ASSOCIATION.

HELD AT PIERCE HALL, BOSTON, MASS., OCT. 19, 20 AND 21, 1892.

SECOND DAY—AFTERNOON SESSION—OCTOBER 20.

The Association met at 2 P.M.

REPORT FROM COMMITTEE ON STANDARD METER UNIONS.

The President—Are there any committees who desire to report before taking up the regular order of business? Does Mr. Gribbel, of the Committee on Meter Unions, desire to make any report for his Committee?

Mr. Gribbel—I have not the honor of being Chairman of the Committee, nor even a member of it; but Mr. Griffin, my partner, is unfortunately, by the course of nature, now the leading member of the Committee. He is not able to be here to day, and he desires me to state to the Association that since that Committee has been formed (it was composed, I think, of six members) Mr. Helme, Mr. Tufts and Mr. Down have died, and Mr. Goodwin has been incapacitated and is out of the country, but that the remaining members of the Committee expect to complete a final report and submit it to you at the next meeting. As a member of the Association I would move that the Committee be empowered to add to their number to replace those who have unfortunately died.

The President—It has been moved and seconded that the Committee on Meter Unions have power to add to its number. (Carried.) Is the Committee on the President's Address ready to report?

REPORT OF COMMITTEE ON PRESIDENT'S ADDRESS.

Mr. Nettleton, Chairman of the Committee on the President's Address, read the following report:

The Committee to which was referred the thoughtful and polished address of the President have considered the same at length, and would respectfully report as follows:

They commend to the careful consideration of the members the remarks on State Gas Commissions and the actual results of the Gas Commission in the State of Massachusetts, and suggest that each member carefully consider the question of the establishment of such a Commission in his own State.

Your Committee recommend that a committee of three, of whom the President shall be chairman, be appointed by the President to consider the tar question and prices received for same in this country, and to report what steps, if any, can be taken by the gas manufacturers to increase the present low prices; said committee to report at the next meeting of the Association.

Your Committee recommend that the usual action be taken by the Secretary in the preparation of suitable minutes relating to the members deceased during the past year.

Your Committee would state that, owing to the resolution passed at the Savannah meeting, they are unable to recommend the printing of the President's Address for distribution among the members. The Committee make this statement to avoid any appearance of discourtesy to President White, but would distinctly state they are fully in accord with that resolution.

CHARLES H. NETTLETON,
ALEX. C. HUMPHREYS,
GEO. G. RAMSDELL,
} Committee.

The President—You have heard the report of the Committee on the President's Address. The Committee recommend that a committee of three be appointed to consider the questions presented in the address. What is your pleasure?

Mr. Cornell—I move that a committee be appointed in accordance with the recommendation contained in the report. (Seconded.)

The President—It is moved and seconded that the report be received and a committee appointed in accordance with their recommendation. (Carried.) Does the Chair understand the report of the Committee to recommend that the present President, or his successor, shall appoint the committee?

Mr. Nettleton—The present President.

The President—The Chair will announce the committee later in the meeting.

The Chair subsequently announced the following as the committee: W. H. White, A. B. Slater, W. A. Stedman,

REPORT OF COMMITTEE ON PLACE OF NEXT MEETING.

The President—We will now hear the report of the Committee on the Place for Next Meeting.

Mr. Chollar—The committee have had the matter in very careful consideration, and recommend that Chicago be selected as the next place of meeting.

The President—You have heard the report of the committee on the next place of meeting. They have decided to recommend to you the city of Chicago as the place for holding the next annual meeting. What is your pleasure?

Mr. C. A. White—I move that the report of the committee be accepted, and the recommendation adopted.

Mr. Harbison—Before that question is put I want to say a few words. I have no doubt that the committee has carefully considered the question of location, but it seems to me that for a meeting of the Association, if it is to be anything more than a visit to the World's Fair, we have made a mistake in the selection of the place for holding the meeting. I apprehend that accommodations for members will be hard to obtain when such a crowd will be there; and if we could present a question as against the report of the committee it would seem as if we might hold our meetings within a reasonable distance from the city of Chicago, so that we might easily get in and out to see the exhibition. I think that would be preferable. I do not know but that the committee know that accommodations for the Association can be secured at Chicago, but that is an important matter, as otherwise our meeting will be practically but little more than a visit to the World's Fair.

The President—The question is on the adoption of the recommendation of the committee. The Chair presumes that the committee have given consideration to the claims of various cities.

Mr. Chollar—The question of accommodation at Chicago was the first question that came up with the committee, and was considered; and we have recommended Chicago.

The President—The Chair understands that the committee have recommended Chicago after fully canvassing the situation.

Mr. Shelton—Of course we realize that the committee acted for what they deemed to be the good of the Association in recommending Chicago as the place for holding the next meeting; but their recommendation is not necessarily final?

The President—It is not.

Mr. Shelton—Before the question is put I would like to reflect some of the sentiments I have heard expressed in connection with this point. I have heard many members express the wish that Chicago would not be chosen for the next meeting. The situation is to-day very different from what it was a few months ago, when it was supposed that the Association would have every convenience in the building which the gas men hoped to have. We expected then that we would have a comfortable building suitable for the meetings of the Association, and where the work of the Association could be primarily carried on. But that has been compietely done away with; and, from my personal knowledge of what the Fair will be, judging from a residence in that city for the past year and a half, I am satisfied that it will be extremely difficult to get adequate accommodation. We know, everyone of us as individuals, to what inconvenience we have been put when the convention has met in cities where we did not have comfort, where the hotel accommodations and the table and sleeping accommodations were inadequate. I think if we choose Chicago we shall deliberately step into greater inconveniences than we have ever before experienced. I speak not only my personal opinion, but I think I reflect the sentiments of at least a dozen who have expressed their views in one of the gas JOURNALS. I cordially agree with the suggestion that we select a neighboring city where the work of the convention can be carried on for the first two days and then adjourn for the balance of the week for Chicago. I hope that the matter will be fully ventilated before final action is taken.

Mr. Collins—I think that Mr. Chollar can explain to us satisfactorily why we do not go to other towns than Chicago. The committee have had arguments before them in detail.

The President—Does the chairman of the committee desire to make any remarks?

Mr. Chollar—The Association may suit itself. The committee considered the matter, and made report that in their opinion Chicago would be the better place.

The President—The Association asks the chairman of the committee for the reason which led the committee to make its decision. The Chair will simply say as its own opinion that the city of Chicago has ample room for us all; but we must remember that this meeting is to be held practically at the end of the Fair. We meet in the latter part of October, after 5½ months of the Fair will have passed. The Chair presumes from its own knowledge of the city that we could hold our meetings, for instance, in Mr. Kinsley's restaurant. There is a large room there, larger than this, in which the meetings can be held. That restaurant is located in the center of a dozen hotels, and there are one or two new ones just open. It never occurred to me when the report was made that Chicago could not take care of itself—although I had nothing to do with influencing the committee in the selection of Chicago. I have knowledge that there are at least 10 first-class hotels within half a mile of Mr. Kinsley's restaurant, where we could undoubtedly hold our meetings. I cannot see why, 5½ months after the opening of the Fair, Chicago is going to be so crowded that we cannot find room there. However, gentlemen, that need not influence your action at all.

Mr. A. C. Humphreys—I would like to agree with my friend, Mr. Harbison, on one subject, and state that in my opinion the meeting must be a failure if it goes to Chicago at that time. As the Chairman has said, there are several hotels grouped right around Kinsley's. There are, I will say, 10 of them. In New York city, as the President knows, there are many more than 10 hotels grouped around almost any one center that you could take; and if the fair was to be held in New York we know positively that there would not be accommodation in New York even for the people attending the Fair. That I believe was acknowledged during the general discussion on the sublect whether it was advisable to try to retain the Fair for New York. I think we ought to study this question very thoroughly, and see that we are not making any mistake in the selection of a place. The Chair has also thrown out the argument that the meeting will be held in the latter part of the Fair, some 5½ months after the Fair has started. Is not that an argument against going there? Will it not be just at the last that the great rush will occur? People who have put off going until the last moment will then make up their mind that they have only two weeks left, and the crowds will rush into Chicago at that time. I doubt if there will be any time during those months when the hotels in Chicago will be so full as they will be just about that time. I should be very sorry to have a meeting of this Association held at Chicago at that time, especially under the circumstances as they exist.

Mr. Ramsdell—I think that the remarks made on both sides of this question are very applicable. There was one thing, however, that influenced the committee very largely in making the report which they did, and that was the fact that quite a general canvass of the membership here seemed to favor meeting in Chicago, or in the vicinity. We talked the matter over quite extensively as to meeting at some point adjacent to Chicago, but it was very difficult to find a suitable place. Most of the towns surrounding Chicago have only very limited hotel accommodations. Until you get to St. Louis I do not know of any place that would be fit for this Association to meet in; that is to say, I do not know of any place where there would be ample hotel facilities. It has occurred to me that if the meeting was so arranged that our business sessions could be somewhat condensed (I do not mean by that to detract from them at all, but so arranged that the time would be more fully occupied), we could certainly get through with our entire business in one day, or in a day and a half, which would give the members ample time for visiting the Fair—of course dispensing with anything in the nature of a banquet, or a day's junketing of any description. I think it will require quite a little effort to properly quarter this convention; but I really think it can be done if suitable steps are taken in advance. The hotel facilities in Chicago are very large. There is no question about that. A large number of new hotels are being erected, and are being opened nearly every day. The people who go to Chicago will go there with their quarters engaged in advance—which would be just exactly what this Association would have to do; and it seems to me that if the proper committees were to take charge of the work in time, accommodations suitable for all of us would be obtained and engaged for the time which the convention would be in Chicago.

Mr. Egner—I would say that Chicago is not very far from St. Louis, and they are going to build a railroad to St. Louis that will take you to Chicago in three hours. They promised to have it ready by next October, and hope to have it ready in time for the World's Fair. If we go to Chicago, even if we get accommodations, we are certain to have a very poor attendance, and I fear that practically we shall have no meeting at all. I think it would be better if the Association would go to St. Louis, and after we get through with the business, even if the electric road is not built by that time, we can get to Chicago in one night, take our families there and visit the World's Fair at the same time. If I can get a second for my motion I will move as a substitute for the recommendation of the committee the recommendation that the next annual meeting be held in St. Louis. The citizens are making great preparation for the illumination of that city, and the Association would there

see an illumination of a city on a style and grandeur which has not been equaled as yet in any city in the world. I therefore move, as a substitute for the report of the committee, that the next meeting of the Association be held in the city of St. Louis. (Seconded.)

Mr. Shelton—There is one point as to meeting in Chicago to which I wish to refer. I speak from personal knowledge; from having been on the ground. I have applied for accommodations for friends for the coming year, and I find that some of the leading hotels absolutely refuse to promise satisfactory accommodations for any considerable number of people in advance; and that condition of affairs will get more and more exacting. But beyond all that, we have reason to fear the effect upon our attendance of the counter attractions of the Fair. We know that in New York last year there was a comparatively slim attendance because of the counter attractions of that city. I predict that if we try to hold the Convention in the city of Chicago we will find a very undue proportion of our members at the Fair instead of at the meetings. The question of locality and surroundings I think can be perfectly well covered. Milwaukee, on the Lake, is a beautiful city. Indianapolis is only half a day's journey from Chicago. Detroit is a large city. I think that in some of those surrounding towns satisfactory accommodations can be found, and that it would be for the welfare of the Association to meet in some of the neighboring cities rather than in Chicago.

Mr. C. A. White—There is one thing to be remembered in connection with our meeting next year, and that is that there are very important subjects to be brought up, the consideration of which will demand our closest attention. We cannot afford to go into a city where we shall not have a good attendance. The report of the Council on Mr. Addicks' paper will come before us then; and there are quite a lot of reports—including that of the committee on the recommendations in the President's address, and a paper on the subject of gas commissions, and other matters—which will come up at that time, and which will make that meeting one of our most important meetings. We want to go in some location where we can have a full attendance. I am somewhat of the opinion, as expressed by others, that if we go to Chicago the Fair will keep many members from the meetings. I have no fear but that we can get accommodations; but the more important question is as to whether we can get a full attendance at the meeting, so that these subjects may be fully considered and closed at that time, (Applause.)

Mr. McKeige—I agree with Mr. Humphreys with regard to this matter. I do not think that any of us want to go to Chicago and sleep on mattresses in the hall. I have had some experience in the difficulty of getting suitable accommodations in this town since I came here. I had engaged a room four weeks ahead; but when I got here there was no room to be had. I had to wait around in the lobby of the hotel for several hours before I could get any room at all, and then had to pay $10 per day. I don't mind that (applause); but I do object to going to a place and not knowing where we are going to lay our heads at night. Our President is a man of great resources, and if he will take a contract to look out for us, I will vote for Chicago.

The President—The Chair will say that it had not anything to do with this report; but it would take a contract to house you and feed you all at Chicago.

Mr. A. C. Wood—If we want simply a business meeting, to get together and do the usual legislative business of the Association, I think it will be well for us to go to Chicago. But otherwise, for the consideration of important matters before the Association, I do not think we shall make the meeting a success. I fear that the outside attractions would interfere with our accomplishing anything but the routine legislative business. For that reason I think it would be unfortunate to have the meeting held in Chicago. It would be a good opportunity for the members to get away from business and attend the great Fair there, but as to the meeting of the Association, I fear we would not accomplish much. It has been suggested that the meeting be held at St. Louis; but I think that if the next meeting were held at the city of Indianapolis it would accommodate more, and bring more to the meeting than there would be at Chicago; and I would suggest that Indianapolis be the next place of meeting. Milwaukee has been suggested rather than Indianapolis, but I am not talking about that.

The President—The engineer of the Milwaukee Gas Company distinctly stated that he did not want us there. Your committee has named the city of Chicago. Mr. Egner has made a motion, which has been seconded, to substitute St. Louis in place of Chicago in the report of the committee as the place at which we shall hold our next annual meeting. The question is now upon the amendment.

Mr. Nettleton—There seems to be so much diversity of opinion on this subject that it has occurred to me—but without any wish of expressing any discourtesy to the committee on the selection of place—that it would be better if it were left in the hands of the Council. The situation may be changed during the year so as to make it desirable and expedient to hold the meeting at Chicago. The Council may find that they can secure ample accommodation; or, on the other hand, they may determine that it can be held in St. Louis. If by vote we now determine to hold it at St. Louis, we must have it there, whether or not. I would like to make, as an amendment to the amendment, a motion that the whole matter be referred to the Council with power to act.

The President—It has been moved and seconded that the entire question as to the next place of meeting be referred to the Council.

Mr. Ramsdell—I will add that you need not be afraid of hurting the feelings of this committee by that motion. We have been all through this.

The President—I would like to call your attention to the fact that your Council is composed of a number of gentlemen scattered all over the United States. It is a very easy thing to make a motion to refer something to the Council, but it is a very difficult and also an expensive thing to get that Council together. It does seem to me that we here ought to be able to arrive at a decision as to the place for holding this meeting without throwing it upon the shoulders of your Council. The Council has quite enough to do without bearing this burden.

Mr. Harbison—As a member of this Association I wish to respect the feelings of any other member who has made the statement that he did not want a meeting of the Association held in his town. He undoubtedly had a good reason for so expressing himself. But if the action of the Association is carried out—that they will not accept hospitalities—then I think that his objection is done away with. If I am correctly informed Milwaukee is within about three hours' ride of Chicago—within an hour and a half, as I am informed—and if that be so we could go to Milwaukee, get good hotel accommodations there, meet and transact our business, and then go to Chicago.

The President—There is one hotel there.

Mr. Harbison—If it is big enough it ought to be all right. We can hold our business meeting promptly, finish up our business, and then, instead of having the third day of the meeting for pleasure, as is usually the case, we can go to Chicago and see the Fair; and then, if we want to come back to Milwaukee for hotel accommodation, it would be within easy reach; so that if we could not be accommodated in Chicago we could be in Milwaukee. It seems to me it would be better to transact our business in a businesslike way, and then have time for visiting the Fair.

Mr. A. C. Humphreys—I ask the indulgence of the meeting to suggest whether it would be possible for the committee to take the matter under reconsideration, and whether under parliamentary ruling that can be done.

The President—It can be recommitted to the committee, without any prejudice to the committee or the question.

Mr. A. C. Humphreys—Then I move that the matter be recommitted—not forcing the matter upon the committee, but asking their indulgence; and suggesting that possibly the discussions here may help them in coming to a conclusion. I make that motion to recommit.

The President—As there are several amendments pending, the most direct way to accomplish the recommittal of the subject will be for the gentlemen who have proposed amendments to withdraw their motions.

Mr. Egner—I withdraw my amendment.

Mr. Harbison—Does that mean that the subject will be recommitted to the committee with power, and that the committee will then inform us of their decisions through the journals?

The President—I do not so understand, but that the committee will take it into consideration at once, and report at this session.

Mr. A. C. Humphreys—Yes; that is what I move.

The President—The several motions pending are withdrawn, and the motion of Mr. Humphreys is that the report of the committee be referred again to the committee, with a request that they will reconsider the subject and report again at this session. (Carried.)

Mr. Ramsdell—I would like to make a suggestion in this connection, and that is that the committee be enlarged. I know just what occurred in this committee, and I would make the motion that five new members be added to the committee—the President of the Association being one of them—and that this committee at once take this matter up for consideration in the other room, and bring in a report here in a short time. I make that as a motion.

Mr. Chollar—I second that motion.

The President—It has been moved and seconded that the Committee on the Next Place of Meeting be increased to ten. What is the pleasure of this Association?

Mr. Littlehales—I think the matter can be readily disposed of in a

few minutes if the Chair will take the sense of the members present on the different places suggested. That would be a more expeditious way of settling.

The President—The question before you is whether you will or will not enlarge this committee. So many as are in favor of adding five members to it will say Aye; contrary, No. It is carried. The Chair will add to that committee Mr. A. E. Boardman, Mr. J. P. Harbison, Mr. A. C. Humphreys, Mr. C. R. Collins, and Mr. Charles Blodgett. The committee will sit during the afternoon, and report before the hour of adjournment. Are there any other committees to report? If not, we will now listen to the paper upon

WATER GAS CONDENSATION,

by Mr. John M. Rusby.

The writer must apologize for presenting so brief a treatment of a rather narrow subject. It is hoped, however, that the few points presented may be of some value and interest to at least a portion of his hearers. It is not the intention to discuss in this paper forms of apparatus, but simply principles of work.

In the process of enriching water gas, tars are formed, and the gas is also at times charged with gaseous substances, designated vapors, to such an extent that they cannot be retained in the gas under the most trying conditions to which it will be subjected on its way to the consumer. The object of condensation is to totally remove the tar, and also remove any excess of vapor, that these may neither interfere with subsequent processes of purification, nor with proper distribution of gas.

Tars, at least in large part, are simply suspended liquids; they are never in the gaseous condition, even at the highest temperature experienced during the process of fixing, and their permanent removal is imperative. They are in large part in condition for removal from gas before cooling of the latter begins; they increase in quantity as the cooling process gradually takes place, through absorption and mixture with very heavy condensed oils, and are readily removed by gravitation or simple mechanical treatment. A fact of some importance concerning tars, is that they possess considerable affinity for the illuminating vapors, especially at a low temperature. This quality is shared by many heavy hydro-carbons, liquid and solid. Dr. Norton mentions an experiment which he performed, in which, by simply passing an 18 candle power gas through olive oil, it was reduced to 7 candle power. These absorbed illuminants were readily driven off again, however, upon the application of a moderate degree of heat, and this same fact is true of illuminants absorbed by tar.

Concerning vapors, the second class of products of condensation, it is to be noted that the constituents of our commercial gas consist of two kinds; those which are gases at ordinary atmospheric temperatures and pressures, and those which are liquid or solid under the same circumstances, the latter being the vapors above alluded to. To the former class belong all the diluents of our gas and some of the illuminants. Thus marsh gas, hydrogen, etc., and of the illuminants ethylene, propylene and acetylene belong to the first class; there is no limit to the percentage of these that may exist in gas; it may contain 10 per cent. or 100 per cent., as far as physical law is concerned. With the second class, however, such as benzol, pentane, etc., it is entirely different, these being subject to the important laws, that they can exist only in fixed weight in a given portion of space, and that they can form a percentage of any compound in which they exist which is always less than unity. The weight and percentage depend entirely upon the nature of the vapor, and the temperature of the space in which it is contained If a space thus saturated with the full amount of any vapor be reduced (as for instance in the cylinder of a compressing pump), or, if the temperature of the space be lowered, immediate precipitation of a portion of the vapor ensues, either as a liquid or a solid. These vapors are liable, as above stated, to absorption to some extent by tar, and also, as is the case to greater or less extent with all gases, to absorption by water, both actions taking place in less and less degree as the temperature of tar and water rises.

The foregoing are the facts of principal importance affecting condensation, and their bearing upon practice is as follows: Many of the illuminants of gas belong to the vapors above spoken of. From the law of their retention in a gas we see that there is a possibility of its being charged at the high temperature of generation with a greater quantity of these vapors than can be retained after the cooling of gas to the temperature of distribution, and as a consequence these oils are condensed in part upon reaching this lower temperature. This liability to partial condensation is slightly increased in those gas making processes which are intermittent, by the fact that the gas necessarily varies somewhat in richness during the successive intervals of make. Where any considerable condensation exists, however, even in these processes, and even with indifferent regard to uniformity of carbureting, it plainly shows lack of proper "fixing" of gas; this process is intended not simply to vaporize and gasify oil, but to chemically transform some heavy and easily condensable hydro-carbons of the paraffine series into more stable illuminants, and where excessive condensation occurs, proper attention to fixing of gas will largely remedy the difficulty. In the writer's works, in which the Lowe process is in use, the total production of both tar and light oils does not reach one half per cent. of the total oil used, the latter being naphtha.

Concerning the absorption of vapors by heavy tar, it would seem at first sight that our systems of treatment of hot gas in very many cases are such as to permit this action to take place to considerable extent. Theory renders advisable, if it were practicable, to remove at once upon formation every globule of tar, that it may have no opportunity to absorb illuminants. Instead of this, however, in very many cases, gas is plunged at a temperature of 700°—1,000° F., with all its contained pitch and heavy tar, into water, where in an instant it is reduced to 150° or 175° in temperature, no means being adopted to remove pitch and tars either before or immediately after this treatment, either one of which—and of course preferably the former—would reduce the opportunity for absorption of illuminants. It is probable, however, that even this rough treatment does not seriously affect the gas, provided temperatures are kept at 125°–150°. In the manufacture of coal gas, M. Alavoine, a French engineer, by inserting a small condenser of P. and A. type upon the end of dip pipes in the hydraulic main, and use of a liberal supply of water, reduced the temperature of gas to 80° F., and extracted 90 per cent. of the total tars and light oils right at this spot; after careful trial for a long period he failed to see that this treatment was injurious to gas. His treatment, in point of temperature, was more severe than our water gas processes in which wash box and water spray condensers are used; he took the precaution, however, to submerge his condenser or extractor in water, in order that the deposited tar should not be exposed to gas.

The above actions—deposition of supersaturated vapors upon cooling, and the absorption of vapors by tar—certainly mean an abstraction of illuminants from gas to an extent varying with circumstances. As above stated, with the use of naphtha and proper facilities for fixing gas, the total production of light oils and tars together might be brought below one-half per cent. of oil used in carbureting. With the use of heavier or crude oils, and less advantages for manufacture of gas, they may be very much greater in amount. There is no necessity, however, that this abstraction of illuminants shall mean a loss. A means for their recovery from tar may be found in the exposure of crude tar to the action of the hot gas from apparatus, this treatment preceding the direct application of water to gas in case the latter system is used. The high temperature of the hot gas makes possible the entire removal of oils from tar. In analyses which the writer has had made the oils were totally removed, and the tar reduced to exceedingly firm pitch below the temperature of 700°. F. There is cause to think that, aside from the ease of application of this treatment of tar by hot gas, it affords a means of absorption of some valuable vapors with least danger of their destruction by heat, which might be the case even were it practicable to pass them again through the fixing vessels. It will be remembered that Mr. Slater made some interesting remarks upon such treatment of gas at our last year's meeting. He is the first person to have tried this method of treatment of water gas to my knowledge.

The third absorption of illuminants, which is by water brought into direct contact with gas, is probably not a cause of heavy loss. The maximum absorptive power of water upon illuminants is exceedingly small at temperatures above 80° or 90° F., and even where direct contact of water with gas is employed in condensation, it is easily possible to have such contact at temperatures above this point, completing cooling of gas out of contact with water. Direct contact of gas with water has the advantage, of course, that by it greater cooling effect in a given volume is possible than by any other system of cooling. There are, however, a number of advantages to be derived from a dry condensation of gas. Tar obtained under such treatment is nearly free from water, instead of containing 40 to 60 per cent. of it, as is true where direct contact with water exists; in the latter case this water must be gotten rid of with some trouble before tar is in condition for utilization. Other advantages which it is possible to derive from dry condensation are the saving of waste heat, and, in some cases, water. The sensible heat contained in the carbureted gas as it issues from apparatus will vary in amount from the equivalent of one to the equivalent of two pounds of coal; the high temperature of the gas makes easily possible not only the heating of water but the generation of steam. By passing

the feed water through a condenser similar to a water heater, on its way to the boiler, the work upon the latter would be much lightened, and coal consumption diminished. It is possible, where water is expensive or difficult to obtain, to separate tar from the condenser water, cool the latter in holder tanks, and use it thus repeatedly in the condensers. This practice is very successfully carried out in the writer's works. Where such a course is impracticable, however, the saving of water by the above system of water heating in condensation would become a point of some importance. The various advantages of dry condensation as outlined above makes it seem probable that, in works of some mag nitude, at least, the extension and modification of condensing apparatus to effect such dry condensation is warranted by the probable economies to be effected.

Discussion.

The President—Mr. Rusby's paper is now before you for your consideration and discussion. The writer will be pleased to answer your questions.

Mr. A. S. Miller—I would like to ask Mr. Rusby if he has been able to thoroughly separate all the tar from the gas without actually straining it through shavings, sawdust, or some mechanical strainer.

Mr. Rusby—In reply I would say that I have never been able to do so, but I labor under circumstances which probably are a little more trying than many people operate under. Our gas goes directly from the condensers, without going through a relief holder, into our purifying boxes. I have found it advantageous there to use some fine material, such as shavings, or the fine screenings from the generator, mixed with the small cinder in the boxes below the oxide, to take out what little tar remains.

Mr. Crisfield—I would like to ask Mr. Rusby if he considers it necessary to wash the gas.

Mr. Rusby—I do not say that it is at all necessary. There is no doubt that contact with water, especially if it is somewhat cool, has the advantage of absorbing certain impurities of the gas to a limited extent; but I should not consider that a sufficient reason for adopting the use of water. It is not at all necessary. There are other means of cooling, either by contact with water or by air condensation.

Mr. Crisfield—I do not wash the gas at all, and am using about 600 feet of atmospheric condensers.

Mr. Rusby—In reply to Mr. Crisfield I will say that the members will all recollect that Mr. Slater made some very interesting remarks on the treatment of water gas, in connection with a paper which was read; and he stated that he did not even use water in his seal—that he put his tar in there and kept it circulating through. That has the advantage of keeping the water altogether away from the gas; and he was fortunate in using that seal to keep the water altogether away from the condensers. He stated to me that the radiation from ordinary water gas scrubbers which he has in use was sufficient to take away the heat, and that afterwards he passed it through a tubular condenser. He dispensed with the use of water even in his seal. What was used was used in the tubular condenser; and aside from that he got rid of the heat by radiation.

Mr. J. A. Dixon—While we have been in the habit in our works of using water to wash the gas after condensation, we are now abandoning the use of water at the Boston works, and find that we have less trouble with tar when we do not use water than when we do use it. We have no trouble with our purifiers in either case.

Mr. Crisfield—I would like to ask Mr. Rusby what percentage of the volume of gas put into the purifying boxes is retained.

Mr. Rusby—I suppose that that is intended to cover all absorption or condensation of tar, if there is any. That would hardly cause a decrease in volume, but of some vapors it would—such as the absorption of sulphureted hydrogen. I have never experimented upon this, but I should expect that the absorption would be the percentage of sulphureted hydrogen that exists in the gas if the purification was perfect, and also whatever deposition of aqueous vapor there was in the boxes.

The President—I thank you, Mr. Rusby, in the name of the Association, for your very interesting paper. Our next paper is upon the subject

DO SMALL GAS WORKS NEED CONSULTING ENGINEERS?

by Col. C. A. White.

It seems to me that Shakespeare must have had an instinctive idea of the creation of our industry when he made Hamlet say, "There are more things 'twixt heaven and earth, Horatio, than ever entered into thy philosophy," for, assuredly, you will bear me out in the statement that, considering the comparatively brief period that has elapsed since the first discovery and use of gas as an illuminant, there has been no industry in which there have been so many changes, such vast improvement nor such rapid advancement. Not only is this a fact in relation to the manufacture of gas *per se*, but also of the bye-products resultant therefrom. When we look back to the days of Murdoch and Clegg, what a vast gulf seems to yawn between; and we can but wonder how or in what manner it was ever crossed and we brought to our present knowledge and efficiency. You will reply that the change has been a gradual one. True, they planted the seed, it was watered by the care of some, nurtured by the labor and investigation of others, until to-day it stands vigorous and firm; and yet, that does not remove the greatness or vastness of that change. The stride has been a prodigious one; and could the spirit of those who cared for our industry during the years of its infancy look upon the giant into which the babe has grown, I can but believe that in their astonishment, aye, amazement, Hamlet's trite words would instinctively fall from their lips.

As it is a true saying that "history repeats itself," it is needless, in an article necessarily brief, that I should dwell longer on such reminiscences. They are indeed ancient—perhaps musty; but we have just as startling changes, if not more so, well known to many within hearing of my voice. We need but to go back 20 years and recall the results produced at the best works and in our largest cities, and compare them with the results at the same standard of works to-day, to see how vast and wonderful the change; and yet, they have come to us without attracting any great amount of astonishment. And why? Simply because we have been in daily, constant contact with them. They have changed with us, they have grown with us, and, as it were, been part and parcel of our existence. Just as in friends and associates, who make part and parcel of our daily walk and conversation, we cannot see any change, either in form or feature, so have been the changes that have been wrought out in our industry; but let us be separated from those same friends for 10 or 20 years, how quickly then do we note the ravages of time. And so, could we forget all of our life, blot out all of our associations with the progress of our industry, and at one step pass from the workings of 20 years ago to those of to-day, believe me that you would be more than amazed. Many of you can yet recall the days when 4 cubic feet per pound of coal, with quite a percentage of English or Scotch cannel, was considered a marvellous result. The question of tar was a grievous one. It was made in vast quantities and the creeks and rivers were used to cover the shame of its having been produced, while such a residual as ammonia—why, the most sanguine, the most imaginative, never dreamed of utilizing it.

We are wont to say that rapid strides have been made in our industry; I fail to see it. It has been slow. There has not been anything rapid about it. If you will think for one moment you will bear me out in my statement that there has not been an improvement offered for our betterment that, if it had merit and has gained a foothold, has done so only after the severest struggle and amid the jeers and cuffs and blows of unbelievers. It is needless for me to call to your mind the regenerative furnace, born practically in this country, I may say, of the genius and labor of the late Mr. George A. McIlhenny, and while you consider the position which it holds in our works to-day you cannot fail to recall, I had almost said, the jeers and gibes that attended his efforts. It is needless for me to dwell further on the many improvements that have been developed in the machinery of our industry during this time, nor the change that has come over the spirit of our dreams as to residuals; but I do want, for just one moment, to ask you to go back with me to a meeting of the Association, held in Brooklyn, in 1874, when our present President read a paper giving the result of experiments, and, after months of arduous labor, the results of a practical use of water gas as a substitute for, or to be used in combination with coal gas. Doubts rose upon all all sides—not one single believer, and only good-natured laughter met the result of his labor. Gentlemen, the babe was born, behold it to day!

I know that the development of electricity has done much to "prick the sides of our intent," and yet you, as well as I, can recall a meeting of the Association, held in the city of New York, in 1878, when the subject of electricity as an enemy was under discussion. One of our most prominent members stated, as a result of his experiments, we had nothing to fear from electricity; that it would require a solid copper cable one inch in diameter to convey a current from the battery to Twenty-third Street; yet, gentlemen, it has got there, and on nothing larger than a "No. 6 wire." The rapid strides made in electric lighting have urged us on, have compelled us to consider new modes, new methods, and to aim in every way to increase the illuminating value of our product, at the same time reducing the expense of its manufacture.

It has not alone been in the manufacturing department that these advances have been made—the distributing and office departments have

grown with them. We no longer find a listless yawning over 30 per cent. leakage, but a determined and continued battle to keep mains and general distributing plant in as near a perfect condition as possible. Services and meters are under constant surveillance, in order that the money made at the works may not be wasted in the air—push and energy mark every part of it, and every effort is put forth to build up a day consumption by the use of gas cookers, heaters or engines, while the clerks in the office are courteous and attentive to the wants of the consumer. There is no more of the 20 year ago take it or leave it, but a desire to please. What a change?

There is another change that, in introducing my subject, I must briefly note; and that is the continued effort towards the reduction in the price of gas, this being but a resultant of the changes and improvements to which I have asked your attention.

Admitting, gentlemen, the facts to be as I have presented them, there can but arise in our minds the question: How shall we best conduct our plants? to whom shall we entrust them? So far as our larger works are concerned, the question is readily answered. The Directory of such companies is, as a rule, composed of men of wide experience and business ability; they know the value of the best engineering talent and are bound to place it in control of their interests, let the first cost be what it may, so they may not be taken into consideration in this paper. It is with the smaller class of works—companies whose Directors are not men of such broad or substantial views—companies who cannot, "as they think," afford to pay a man a salary equal to that of a first class mechanic, yet place him in a position of trust and responsibility.

There are very many companies who employ but one man—who must overlook matters at the works and office, take statements and make out bills and attend to their collection, and, as sort of rest from his labor, he is called upon to run services and set meters. True it is, the output of such companies is small, and what they need is not a skilled engineer, but a jack-of all-trades; a man that will be a sort of a bung to fit every barrel. You have doubtless seen just such works. You have visited their plant, have seen gas leaking from almost every joint and mouthpiece in the retort house—the scrubbers or condensers have not been cleaned for months, perhaps years. The station meter, if they have one, possibly bye-passed because it needs some slight repairs, and the man in charge will, with the blandest smile, reply to your query on the subject: "Oh! we do not need it; we can guess near enough." The holder in horrible shape, and filth and dirt everywhere. The office is everything combined, yet everyone, from the President in his country store down to the stoker at the works, wears a genial smile and is happy. So long as the price of gas can be maintained at an exorbitant rate, so long as there be no opposition, so long as the works itself hold together, well and good—but the day of retribution will surely come. The works that I have described are not few in number, they are possibly earning a living at the fearful cost of the destruction of the plant. What a field for improvement, what an invitation for competition? How much better and more profitable to the shareholders of such a company did they employ some competent engineer to pay them an occasional visit to see that the works were placed and kept in the best possible condition; to see that the leaks were stopped, not only in the mains but in the expense, thus enabling them to reduce the price of gas, thereby securing new, as well as pleasing old, customers, and reducing to a minimum the inducements for a competitor in the shape of an electric company.

I know that there are other places where competent men are in charge, but where the Directory is of that suspicious character and parsimonious nature that they are not able to render to the company the full measure of their services. To such a one a consulting engineer would, as Mr. Salmon says in his closing remarks before the North of Ireland Association, be a shield, a go-between; in fact, a God-send. I have in mind now a works that was conducted in such a manner that one-half of the time the Superintendent did not have one day's supply of coal on hand, bickerings and quarrels occupied the time of the Directory, nothing would be done to preserve or improve the works, and a short time ago it passed into the hands of the sheriff. I will not say that a consulting engineer could have altered this result, but the chances are that one who had the confidence of the Directory would have, more than likely, brought harmony out of discord and order out of chaos.

As this paper has already far exceeded its intended limits, I will close with a brief summary of its statements. I have placed before you the fact that, with the competition of electric illumination and the demand for better and cheaper gas, the obvious need of every company, be it ever so small, to meet these, is a plant in first class order, as good a man at the helm as their means will allow, a stoppage of all waste, a frank and courteous attention to the needs not the demands of their consumers, and a determined and energetic effort to introduce the use of gas for other purposes than illumination. It is to the smaller companies that these remarks more fitly apply; the larger ones can afford a margin of waste, the former cannot. It is not in human nature to suppose that the directors of the smaller companies shall, as a rule, be men of as broad views or wide business ability as those of the larger ones. We have admitted that such companies could not afford to pay a skilled engineer for his services during the entire year. There is hardly the need of such an outlay, their wants are rather for a common-sense, all-around man who could, in a general way, look after all departments; the more need, therefore, that they should have some one in whom they can place entire confidence, and upon whom they can call for advice as to the best and most economical conduct of their works, its repair or extension. With such a personnel the result could not but prove of the greatest benefit—not only to the condition of, and production from the works, but in the money return to the shareholders.

Discussion.

The President—The paper is before you for discussion. Do any members desire to ask any questions of the writer, or to discuss the positions he has taken?

Mr. Egner—I thought that I had in my pocket a letter that would bear upon that very subject, but find that I have not got it. It was from the President of a small Western gas company. Many years ago an inventor went to that town and thought that it was large enough to support a gas company. There was already an electric light company in the place, and they had been there long enough to give offense to some of the consumers, and so the people clubbed together and thought that they would build a gas works. This gentleman was connected with the railroads, and knew the place, and so he went there and put in a water gas apparatus. He built a water gas apparatus after this style: He blew oil, air and steam into the generator, and heated the brickwork in that way, and then shut off some of the air when it was hot enough, and then thought it would make gas; and he had a Jones jet photometer there to show how much illuminating power the gas had, and if the candle power was too high they would put in more air. The people were very happy. They have a holder there of $\frac{5}{16}$-inch boiler iron, and they make gas there—I call it gas by courtesy—there is some gas and a good deal of air. They make gas at the rate of about 30,000 feet per hour, and they have one purifying box, 10 × 12; and they thought to purify the gas by using Lima crude oil. I was asked to go and look at that and see the great gas apparatus. I tried the gas, first thing, and found that it was foul. They did not know any better. Now, had any reputable builder been asked to put up a gas works for these people he could not have secured a job, because, having this water gas plant in the way, he could not have secured it, because he would not have risked his reputation. He would have put up works which would make gas and purify gas to some extent. But they did not know anything concerning engineers. They only had met this gas man and he put up his apparatus. Then the trouble commenced. After it had been in operation about two months they found that the gas stratified. The gas goes out. It blows. I received a private letter asking me to answer the question, why gas blows, and was there not something to regulate the pressure of gas in street mains. They have asked me at least 40 questions, which I am expected to answer for nothing. And there we come back to this question—do small gas companies need consulting engineers? Consulting engineers would be a very good thing for many gas companies, but as a rule they make use of Associations like this. There is where I would censure our Secretary in one sense. He put in one of his circulars the statement that it was a very good thing for the members to attend these meetings, because the Association was a sort of free consulting engineer. About a year ago I never would have cared for that, for I would have been one of those same consulting engineers; but now I object. But nevertheless it is a fact that this injures the gas business throughout the country, for the patent men go around and put in such plants as I have spoken of; and it shows that Col. White's paper hits the right thing in this, for it shows that consulting engineers would be of a great deal of value.

The President—Are there are any other remarks on this paper? If not, we are obliged to Mr. White for his paper. The reading of this paper concludes the list of papers which have been brought forward at this meeting. We still have before us the contents of the question box, which we trust will prove of interest to us all, and also valuable to the gentlemen who have propounded the questions. As there is a sudden influx of gas men I presume that the committee on the selection of the next place of meeting are prepared to make their report.

PLACE OF MEETING NAMED.

Mr. Chollar—At the second session of the augmented committee (eight members being present) we have discussed the question very thoroughly, and the opinion of the committee is that, on account of the probable difficulties in obtaining suitable accommodations in Chicago, the meeting had better be held at Waukesha, a place about 3½ hours' ride from Chicago; and recommend that the business session be concluded in one day. If we complete the business of the Association that night the members can then go to Chicago and attend to the Fair. Waukesha is selected especially on account of its being further than Chicago for most of the members who pass through Chicago. Some other towns were suggested, but the opinion of the committee was unanimously that Waukesha had better be recommended as the place of next meeting.

The President—You have heard the report of the committee on the place at which to hold your next meeting. The committee recommend that it be held at Waukesha. What is your pleasure?

Mr. Cressler—If it be in order I would like to extend an invitation to the Association to meet at Fort Wayne. (Applause.)

The President—You can make that as an amendment to the report, but you are not in order in the way in which you present it. You can move to amend the report by substituting the name of the town, Fort Wayne, for Waukesha.

Mr. Cressler—I would like to have the matter considered before the committee, and I will put it in that form, by offering as an amendment to the report of the committee that Fort Wayne be substituted for Waukesha. It is 150 miles east of Chicago, with seven trunk lines to it, and plenty of hotel accommodations. We believe that its location will suit everyone. (Seconded.)

The President—It has been regularly moved and seconded that the name of Fort Wayne be substituted for that of Waukesha in the report of the committee.

Mr. C. A. White—The position is simply this: There has been no action taken by the Association yet upon the report received from the committee. For the purpose of bringing it properly before the Association I was going to move that the report be accepted.

Mr. H. C. Adams—In order that the Association may vote intelligently on this matter, I think it would be well to have the committee explain where Waukesha is, and why that place was selected as a site for the meeting. I really do not believe that one-half the members present know exactly where Waukesha is.

Mr. Chollar—Mr. Ramsdell can give the Association more information about Waukesha than I can; he knows where it is.

Mr. Ramsdell—I am very much surprised at the geographical ignorance of the Convention. Waukesha is a very flourishing little city, quite a noted summer resort in the West, about three hours' ride from Chicago and about one hour's ride from Milwaukee. It is, as I have said, a summer resort which is quite popular in that part of the country, and is visited by very many every summer. As a rule the hotels are open only in the summer. They have a large number of good hotels—one in particular, a very nice hotel which would afford ample accommodations, and in good style, for the meeting of the Association. This hotel is the Fontaine House, which will open this year on the 1st of May, and will continue open until the closing of the World's Fair. There is no difficulty in getting to the town. There are three different railroads there—the Chicago and Milwaukee Central, the Northwestern, and the Wisconsin Central. In discussing the matter it was thought, if we go away from Chicago, that would be as suitable a place as the Association could select. It is a quiet place, and there will be very little outside influence to draw the members from the meetings. The sessions could be concluded in one day by holding an evening session, and the business that is usually conducted in one of our meetings could easily be transacted in that one day. I think, then, arrangements could be made for a special train to Chicago, so that members would have two days in Chicago, and still not be away from home any longer than the ordinary length of time. As far as I am personally concerned, I would as soon go to Fort Wayne as to Waukesha, but I really think it would be better for the interests of the Association to hold the meeting where the committee have now recommended—in the city of Waukesha.

Mr. A. C. Humphreys—Possibly it may help to correct a misaprehension, if I state that the city of Fort Wayne was fully considered in the first committee, as I am assured by the members who constituted that committee. It is true that it was only brought to the attention of the enlarged committee rather late in the session. We gave a hearing to its claims, and decided not to recommend it in view of the facts stated, and in view of the reasons given when the committee reconvened and reconsidered it. I would like to say one word as to the special qualifications suggested by Mr. Ramsdell of the city of Waukesha. It is our idea to have a meeting in which we can concentrate more work, and at the same time not lose track of the very great attractions at Chicago. At that particular time many of our superintendents will have the only opportunity afforded them to visit the great show; and they may want to use that as an excuse to be in that neighborhood. That excuse must be a valid one. There are important matters coming up for consideration at the convention which makes it incumbent upon them to be there. Therefore, let us get a quiet place, where there will be no other attraction, finish our work in the shortest possible time, and then promptly adjourn to Chicago.

The President—Does any other gentleman desire to express an opinion on this matter?

Mr. Brown—I understand that Fort Wayne possesses all the qualifications advanced by Mr. Ramsdell on behalf of Waukesha; and I am sure that everything will be done there that can be done to make it pleasant, and enable us to hold a meeting in a satisfactory manner.

Mr. W. R. Beal—It seems to me that the very best way to have a successful convention next year is to have it where the members of the Association will be sure to go—and that is in the city of Chicago, where ample provision will be made for our requirements, and where all those earnest and active fellows who are looking for work night and day may find plenty of opportunity for work in the convention hall and elsewhere. I hope that this convention, with all its members, will be in Chicago in strong force, and that you will not go to Waukesha, Fort Wayne, or any other place.

Mr. W. R. Pearson—I do not wish to be considered as opposing the recommendation of the committee as to Waukesha, but it occurs to me that the only difference it makes with regard to going to Chicago, is that instead of having to secure accommodations for three days we will have to find accommodations for two days. I do not see that it really makes any difference in that respect, for we shall have just as much difficulty in having accommodations in Chicago for two days as we would have for three days.

Mr. A. C. Humphreys—I will say that that point was also considered by the committee, and I do not think it is a good point. It is true that many of the members will want to find accommodation in Chicago for those two days, but they will not need to have any headquarters, and they will not need to have accommodation in one central location, but can scatter themselves all over Chicago's wide domain, and have no relation at all to each other, and can, as individuals, view the exhibition as they find it to their advantage.

Mr. W. H. Pearson—I think that the members can meet together, although they are scattered over the city of Chicago, and that there would be no difficulty in getting a hall, and that it would be just as well to meet in Chicago as in Waukesha.

Mr. Graeff—I do not think that Mr. Pearson knows Chicago very well. There is considerable difficulty in obtaining accommodation there of any kind. The ceremony there this week has shown the disposition that a great many in Chicago will exhibit towards visitors there next year. If we meet at either Fort Wayne or Waukesha we will not have to procure accommodation at Chicago for two days, but only for one night. If we meet near Chicago we can leave that place in time to reach Chicago early in the morning, can stray over the city, and will only need to provide ourselves with accommodations for one night. The second night we would expect to leave for our homes, if we keep up the usual routine of our Association meetings. I think that the bulk of our Association membership will be found east of Chicago. Therefore, I think, as between a point to the east and a point to the west of Chicago, we should decide in favor of the point to the east. With all due respect to Waukesha I may add that Fort Wayne is not only a summer resort but a winter resort as well; and we shall there be in the hands of first-class gas men. (Applause.)

Mr. Fodell—I think that if we are early in making our arrangements we shall be able to get sufficient accommodation in Chicago, and I hope you will go to that city.

Mr. Robert Baxter—As a member of the first committee I would like to say that when Fort Wayne was mentioned we were given to understand that the hotel accommodations were not good enough for the Association. Although, as a member of the committee, I voted with the others in selecting Waukesha by unanimous agreement, still I feel, from what has been said with regard to Fort Wayne, that if I had to perform the same duty again I would be in favor of Fort Wayne as the place for meeting, for the reasons which have been already stated. (Applause.)

Mr. Cressler—I can assure the members of the Association that we

have ample hotel accommodations at Fort Wayne, and at the moderate rates of $2 and $3 per day.

Mr. H. C. Adams—One point mentioned by Mr. Humphreys we should not lose sight of, and that is that if this Convention holds its next meeting at Waukesha it will be necessary for a majority of the members to pass through Chicago in order to reach Waukesha, and in that way I am quite sure that a number of our members will be enabled to reach Chicago who would not otherwise get there if we held the meeting at Fort Wayne.

Mr. Egner—If I am not out of order, I wish to say that I still can see no good reason why St. Louis would not be the best place for holding the meeting of the Association. (Applause.) As far as hotel accommodations are concerned I may say that St. Louis is a city of 500,000 inhabitants, and that it has first-class hotels. We will find good accommodations there and no mistake. You will see an illumination which will be a revelation to many of our members. Such a thing as has never yet been attempted anywhere else you will see there. You will see something thas you probably have never seen before. If you want to visit the World's Fair you can get on any of the roads running from St. Louis to Chicago, have a good night's rest on the sleeper, run over good roads, and visit the World's Fair next day, and then, if you cannot find accommodations, you can take a sleeper right back to St. Louis again. You will have good meetings there, and you will be able to see the World's Fair also. St. Louis is a large city, and you will be able to see something besides Chicago. I do hope the Association will settle on St. Louis. It is the best place for you all to go. And, as the Association has passed a resolution not to accept any hospitalities, you need not put out any of those manufacturers if you go there. If they do entertain the Association, then, as one of the St. Louis manufacturers, I will pay my share.

The President—Gentlemen, you have heard the report of your committee recommending that your next meeting be held at Waukesha. The amendment before you for your first consideration is that of Mr. Cressler, suggesting the name of Fort Wayne to take the place of Waukesha. Our first vote will be upon that amendment. So many as are in favor of adopting the name Fort Wayne in place of Waukesha, will say Aye; contrary, No. The Chair is in doubt. Gentlemen who vote Aye will please rise, and the Secretary will please count. Those who are in favor of Fort Wayne will rise. Those who are opposed will rise. The question is lost, there being 32 affirmative and 50 negative votes. The Chair decides that the amendment is lost. The question now recurs upon the original recommendation of your committee—that our next meeeing be held at Waukesha.

Mr. Slater—I move to substitute the name of Chicago. (Seconded.)

The President—Mr. Slater offers an amendment, duly seconded, that the name of the city of Chicago be substituted for that of Waukesha. Do you wish to debate the question?

Mr. Nettleton—I would like to renew my suggestion that, as there is so much difference of opinion here, we might leave this question to Council with power to act. The President has stated that the members are so far separated that they cannot get together easily; but they can get together while they are here, and in that way we can have the whole question settled.

Mr. Starr—I was surprised that anybody wanted to go away from Chicago. There is where we all want to go. As to going to this watering place, Waukesha, I am further surprised about that. If you don't go to Chicago you had better go to Milwaukee; there is plenty of room there.

The President—The question now is upon the amendment offered by Mr. Slater, that the name of the city of Chicago be substituted for Waukesha in the report of the committee. So many as are in favor of the adoption of this amendment will please rise. Gentlemen will understand that they are voting now upon the adoption of the name of the city of Chicago in place of that of Waukesha as the next place of meeting. As many of you as are opposed to the adoption of that amendment will please rise. By a vote of 48 in the affirmative to 45 in the negative the amendment is carried. (Applause.) Your action now recurs upon the report of the committee as amended. So many as are in favor of the report of the committee as amended will please say Aye; contrary, No. It is carried.

Mr. McDonald—There seems to be in the minds of some of the members very great doubt as to where we are to go. Are we to meet in Chicago?

The President—Chicago is our next place of meeting. Your attention is now called to the several questions in the Question Box, which the Secretary will read. If any member can give answers or information that will be a guide to the asker of the questions it will gratify the Chair as well as the gentleman asking for information.

THE QUESTION BOX.

1. "Can the ammoniacal liquor produced at small gas works be made to yield a revenue, and if so, how?"

The President—Is there any answer to that question?

Mr. Walton Clark—The conditions of small gas works are so various that, from my experience in the manipulation of ammoniacal liquor, I do not believe that the question can be generally answered. It requires a knowledge of the circumstances of the small gas works.

2. "Which oil possesses the higher percentage of available illuminants for enriching water gas, naphtha or Lima crude?"

Mr. Miller—I think that matter was taken up at the last meeting of the Western Gas Association, and discussed pretty thoroughly. I think the consensus of opinion was that Lima crude was the better. If the gentleman who asked that question will look up the proceedings of the Western Gas Association as published in the JOURNAL,* he will find the matter pretty thoroughly elucidated.

3. "What is the cause of the reduction in price paid to gas companies for coal tar? Tar products seem to be in at least as great demand as ever; more water gas proportionately than ever seems to be made; then why is the tar now worth less, as seems to be the case in many parts of the United States?"

The President—I can refer the gentleman to the President's address for an answer to that question, which I think touches the keynote.

4. "Has anyone ever effectively eliminated the sulphur from oxide of iron spent purifying material; and does it pay?"

Mr. McDonald—I think if the gentleman who asked that question will look back in the proceedings of the Association he will find it answered several times. I think the answer was that it never had been successfully done, although I am not positive of that.

5. "What is the best way to realize a return from water gas tar?"

Mr. Walton Clark—Sell it.

Mr. Harbison—There is a better way than selling it—use it for painting purposes around your works. If you will use pretty nearly all you make you will have a much better return in the protection of your buildings and ironwork.

The President—The Chair does believe that water gas tar has now been put in merchantable shape, and that there are companies which are making water gas and making a good return for the tar. Is that not so, Mr. Humphreys?

Mr. A. C. Humphreys—Yes.

Mr. Walton Clark—I think that an efficient separator should take the water from the tar to a sufficient extent to enable it to command a good price in the market. Or, it can be used, as suggested, for painting purposes.

Mr. W. R. Addicks—In figures, it is very easy to sell tar containing not over 8 per cent. of naphtha at a price approximating, say, 70 cents per barrel.

Mr. A. C. Humphreys—I would suggest that if you cannot command a better price for tar than 70 cents, by all means burn it in your works as fuel.

Mr. W. R. Addicks—It depends upon where you are.

6. "Is there any method for separating the water from water gas tar by chemical instead of mechanical means?"

Mr. A. C. Humphreys—I would suggest that the Secretary might answer that question.

The President—It is referred to the Secretary.

Secretary Slater—I confess that I am not aware of any chemical means for separating water from water gas tar, such as it would be practicable to adopt in any commercial operation.

7. "Is any American engineer successfully practicing the recalcination of spent lime?"

Mr. Blodget—The Mutual Company, of New York.

The President—Then that questioner might be referred to Mr. Allen, the Superintendent of that Company, for further information.

8. "What experience have members had with the Gas Appliance Exchange? Is it of any assistance to them?"

Mr. F. P. Addicks—It is of great use in Boston, and is giving very gratifying results.

Mr. Pinkney—Does not that method of handling gas stoves increase the cost to the consumer, and so decrease the profit to the gas company?

The President—Mr. Pinkney desires to know whether the handling of

* See JOURNAL, June 6, 1892, pp. 810-11-12-13-14-15.

gas cooking apparatus by Gas Appliance Exchanges has not increased the cost to the consumer, and whether it would not be better for the gas company to deal in the stoves.

Mr. Pinkney—In other words, I mean to ask if it does not cost more to buy through that medium than to buy direct.

The President—The Chair would presume it does, as it is not to be supposed that the Exchange is in business for philanthropy, but to make money, and so long as the consumer will buy the stoves, it don't matter much what they may cost.

Mr. Pinkney—It does make a difference to the consumer, and the cost may determine whether he will buy or not.

The President—The Chair's personal experience has been that the consumer, who was reluctant to purchase a stove, always objected to the cost, whether it was sold by the company at an absolute cost, or some one was paid a profit. It don't seem to make much difference. The man who really wants a gas stove will buy it anyhow. The man you have to coax to buy, will make no more fuss at the price which the Gas Appliance Exchange will ask for it than if you give it to him at absolute cost. It has never made any difference, in my experience, in the sale of stoves. In fact, I think people had rather pay a little more and get it from some one else than a gas company.

9. "Is the calculation generally regarded as correctly made? 'As the illumination from any one source of light will be inversely as the square of the distance from the object illuminated,' it follows that a light of 20 candles, which is 4½ feet from the paper or book to be read, will be only giving a lighting effect of one candle at one foot distance from the same object; $\frac{20 \text{ (candles)}}{-.2} = \frac{1 \text{ (candle)}}{12}$ or 1=1.

Whereas a 30-candle power light placed on table one foot from the page, will give 30-candle power lighting effect."

Mr. A. C. Humphreys—You can very readily work in a trick on that question; and it may be that the man is considering a trick himself. You are comparing two lights with each other. The statement is that a 4½-candle power light, at 20 feet distance, will give the same amount of illumination on the page as a one candle power light one foot distant. You are comparing the lights in that order. They would be the same. But you want to carry it out and put a 30-candle power light in the same method of comparison; and at one foot it will give a light of a 30 candle power light at one foot distance. The question answers itself so far as that last part is concerned. It will give the light of a 30-candle power light at one foot distance.

The President—Has any member anything to offer for the consideration of the Association? We have now reached the end of our business; the papers have all been read, and the various questions in the box have been answered.

Mr. Walton Clark—It has been brought to my attention that one question was sent to the Secretary which has not been answered. It refers to the statement that a man read a book at a distance of seven miles from the top of Mount Washington by the light coming from the search light on Mount Washington; and asking if, by following out the rule of inverse squares, a 20,000 candle-power light would give sufficient light at a distance of seven miles for a man to read by.

The President—There are several questions here which are clearly jocular, and so the Chair laid them aside and did not read them, and evidently laid this question aside unwittingly. Here it is:

10. "The law of inverse squares would make a light of 20,000 candle power at a point seven miles distant equal to .000015 candles. The search light of 20,000 candles on Mount Washington enabled a man to read a newspaper at a point seven miles from the light. Did the man read by inverse squares?"

A Member—If lenses were used the light would not be increased in proportion to the inverse squares?

Mr. Walton Clark—I only knew of the question from being told that it had been asked. I understand the question to be—Could a man read at that distance if the light was diffused according to the law of inverse squares. I understand that the light was not an open light, but that there were reflectors behind it. Therefore the rays were parallel; and therefore the light was not subject to the law of inverse squares.

A Member—I think the locomotive headlight is a very good example of that.

The President—We have now reached the conclusion of our labors. What is your further pleasure?

Mr. Harbison—It is well known to the members of the American Association that at your last annual meetiug the then President was deprived of the privilege and pleasure of presiding over the deliberations of the Association; and the present President, then 1st Vice-President, very kindly performed those duties in his absence. As to how those duties were performed the members of the Association are well aware. And at this session it has become the duty of our President to preside over our deliberations here. As to how well he has performed that duty we all know. It has been customary to offer a vote of thanks to the retiring President for the way in which he has performed his duties during the year; but in this case a double vote of thanks is due. We all know that the success of our meeting depends in a great measure upon the efficiency and wisdom of the presiding officers; and I want to bear testimony here to the earnestness with which our President, now retiring from the position, has performed that duty. I therefore move an earnest and heartfelt vote of thanks to the President for his efficient services to the Association during this year.

Mr. A. C. Wood—I second the motion.

Mr. A. E. Boardman (President-elect)—It has been moved and seconded that a most earnest and hearty vote of thanks be given to the President for the manner in which he has presided at our meeting. Are you ready for the question? All in favor of it will signify it by rising. Mr. President, it is my very pleasant duty to extend to you the thanks of this Association; and I do it with a greater pleasure because I have personal grounds for saying to you what the feelings of the Association are; and I hear from every side that there is no man in this Association who has done more for the general success of the Association than yourself. (Applause.) From the first inception and beginning of this Association you have labored faithfully for one idea—the success of the Association. You have frequently put aside the solid acquirements which are your due in the profession in order to add that bright side to the social communions which we have had, and for which we are so much indebted to you. This very feature is as important in my estimation as any other portion of our meeting. And while you have continued to join as one of the leaders in our engineering department, you have frequently sacrificed a laudable desire in order to give your time and attention to our enjoyment. We owe you a hearty vote of thanks for that also. We have given you the highest office in our power. We wish we could raise you still higher; and in retiring we wish you to know that you have the heartfelt friendship of every member of this Association. (Applause.)

President White—It seems unnecessary for me to make a speech to you. I have been doing that for twenty years; and if I were to make one twenty years long, I could not express to you any more than I do now how deeply and sincerely I appreciate the friendships which have come to me through this Association. As Mr. Boardman has said, I have felt at times that I had been too much of the social and jolly fellow with you; and that you had possibly reached a point where you thought that that was all there was of me. But I can no longer carry such a thought. After twenty years of service with this Association, from the day of its birth to this moment in many positions of trust in it, always bearing the friendship and kindly regard of its members, you at last saw fit to place me in the highest office in your gift. I have certainly endeavored, as I promised you I would when you so elected me, to give to you and to the position the very best of my ability in fulfilling its duties. It is very grateful for me to feel, as I do sincerely feel, and as I believe you sincerely mean what you have said through your vote, that you feel that I have fulfilled your expectations, and have carried out the duties you entrusted to me in a dignified and proper manner. I can only heartily thank you. I leave the office with the sense that you have at last removed from my mind the impression I often had that you considered that I was good as a court jester at dinner; that in the dull moments of the business I could raise a laugh to lighten the hour. You have taken that thought away, and it was possibly the only bitter thought I ever had in my connection with this Association. I was told once by a gentleman who reached high office in this country (but never the office that he should have reached, for his ability was great), as he sat by my side at a banquet in New York and had listened to one of my nonsensical talks—"Harry, you are making the same mistake that I have made all my life. For Heaven's sake don't be a funny man. Everybody will simply rate you at that, and measure nothing else that is in you." And when I say that this advice came from that genial, whole-souled, learned and eminent man, "Sunset" Cox, you may know how it touched me, and bade me pause and think. I did then stop and think, and it did seem to me that that was my position with the gas profession of this country; and that unwittingly I had earned your love and friendship, but only as a man who would tell a story or do almost anything to add to your fun and amusement, but somehow seemed to lack solid acquirements. You

have kindly removed that thought from my professional life. I have never claimed to be a great engineer. I simply claim to be one of the ordinary, everyday workers in the ranks. But I want you to feel that what I had in me I was doing the best with; and that, while I was jolly on occasion, I was also prepared to do my share of the hard work. I thank you heartily; I thank you earnestly. It is indeed, as I have said, grateful for me to know that after 20 years spent in laboring here among you, you have seen fit to crown the efforts of those years with the highest office in your gift, and to say that I have fulfilled its duties to your satisfaction, and that I leave it with your affection, with your approbation, and with your respect. I thank you. (Applause.) Is there any further business you desire to transact before adjournment?

Mr. Littlehales—Next to your own valuable services to this Association, Mr. President, come those of the Secretary. I am sure we each appreciate in a high degree the services that Mr. Slater has rendered during the past year in helping to make this meeting effective. I move that a hearty vote of thanks be tendered to Mr. Slater for his services.

Mr. Egner—I want to second that motion.

The President—It has been regularly moved and seconded that the thanks of the Association be tendered to Mr. Slater for his efficient discharge of the duties of his office. As many of you as are in favor of the adoption of this resolution will signify the same by rising. It is unnecessary to ask for the other side, for there is none. Mr. Slater, I have the pleasure of presenting to you, by unanimous vote, the thanks of the Association for your services during this meeting, and for your preparation for the meeting.

Secretary Slater—Mr. President and gentlemen of the Association, I assure you I heartily appreciate your expression of confidence, and hope that the same feeling will be merited by acceptable services during the ensuing year. Gentlemen, I thank you. (Applause.)

The President—Before we adjourn I think I may say, as the sense of the meeting, that the President extends the thanks of the Association to the Local Committee of Arrangements. We have been very well cared for so far, and the ladies who are with us have been delighted with their entertainment. To-night we shall experience our first touch of the care of this committee, and to-morrow they will also have us in charge. I assume that I violate the wish of no one in saying that the thanks of the Association are extended to the Local Committee. (Applause.) The Local Committee of Arrangements for Chicago will be announced later in the JOURNAL. The Chair is not prepared, without consulting with Mr. Boardman, to name the committee now, but they will be informed in proper time.

The Association then adjourned.

Manufacture of Electric Light Carbons at Nuremberg.

M. Leon Duplessis, who represents the French Republic as Vice-Consul, at Nuremberg, Bavaria, recently forwarded a very interesting report on the manufacture in that city of carbons for electric lighting. M. Duplessis says that the production of electric light carbons is carried on in six large factories, belonging respectively to C. Conradty, Ch. Shmelzer, Carl Braun, J. G. Meier, Emile Mahla, and Jules Fuchs. To these may, perhaps, be added a seventh, namely, that of Dr. Albert Lessing, though the latter does not produce carbons for electric lighting, but only battery carbons.

The raw material employed in this manufacture is "retort graphite." As far as the vice-cousul was able to discover, this material only is used when homogeneous carbons are required; but when cored carbons are to be made a softer substance is added. Before they are ready for use, homogeneous carbons pass through twelve, and cored carbons through sixteen, different processes. The first operation is to break the graphite into small nuts. For this purpose a three-stamp mill is used. The stamps, in falling, crush the graphite placed over movable steel gratings that allow the broken material to pass between their bars. These bars are placed nearer to one another, or farther apart, according to the size of the pieces required. Having passed this grating the pieces are collected by hand and passed through a sieve. The coarse particles are submitted to a vertical crushing, and the fine are passed on to a rolling-mill. The vertical crushing is intended to reduce the pieces of graphite to about the size of semolino grains. The graphite thus treated is directed a second time into a sifting machine. Then follows more rolling. The sixth operation is to damp and mix the graphite obtained from the rolling mill, as well as the powder gathered in the sifting machines, with a binding substance. The mass delivered from this machine being too soft, it is necessary to render it plastic and capable of taking a shape, and with this object it is consigned to a sort of puddling machine which produces a species of paste. This paste is pressed through a machine fitted with dies. These produce coarse rods or other pencils, according to the diameter of the cylinders. The rods so prepared are introduced into steel hydraulic cylinders and submitted to a pressure of about 25 atmospheres. Some of these hydraulic presses—the construction of which the Nuremberg manufacturers have only attained by successive steps—can deliver 500 metres of carbon per hour, or from 2,000 to 3,000 arc light carbons of average size. All these operations terminated, the carbons obtained are baked in a blast furnace where the temperature occasionally attains as much as 2,000° Centigrade. When homogeneous carbons are withdrawn from the furnace they have only to be passed on to an automatic cutting machine. This machine is in direct communition with a ventilator which draws off the powdered carbon produced in cutting.

The construction of machines employed in the manufacture of electric light carbons is also a Nuremberg specialty, and the house of Justus-Christian Braun has a monoply of the business, and supplies machines in Europe and America. The cost of an outfit for a factory is put at $5,100, irrespective of packing, transport, and customs charges.

ITEMS OF INTEREST FROM VARIOUS LOCALITIES.

MR. WILLIAM TRACY has resigned his position of Superintendent and General Manager of the Alton (Ills.) Gas and Electric Light Company in order to accept the Superintendency of the Springfield (Mo.) Gas and Electric Light Company. The only reason for the change is that Mr. Tracy desires to keep mounting the ladder. President Underwood and Mr. Tracy have always been in pleasant accord over the management of the Alton works, and through their joint efforts the plant and business have been vastly improved. The resignation takes effect on the 15th of December.

MR. JOHN J. ROWE, who for some time back has been in charge of the works at Springfield, Mo., left there on the 15th inst., he having accepted the position of Superintendent to the Eau Claire (Wis.) Gas Light Company. Mr. Rowe was very successful this year in placing gas stoves at Springfield, 160 of these useful appliances having been disposed of. During the season just closed four miles of main pipe were laid, and the carbonizing department was also overhauled. Mr. Rowe leaves things in good shape for his successor, who, as will be seen from the preceding item, is Mr. William Tracy.

THESE changes, of course, cause a vacancy at Alton, but President Underwood will not be long without an able lieutenant, for Alton has a good future in the gas line before it.

THE Lobdell Car Wheel Company, of Wilmington, Del., has placed the contract for its new machine shop with the Berlin Iron Bridge Company, of East Berlin, Conn. The building will be 67 feet in width, divided into a central portion of 25 feet in width, with wings on each side 21 feet in width. The central portion is controlled by a 15 foot traveling crane. The building will be 15 feet long, the entire framework being of iron, the side walls being of brick.

WE understand that the franchise granted last summer by the City Council, of Manchester, Va., to Messrs. W. J. Winegar and associates for the operation of a gas works at that point has expired by limitation, the grantees having failed to keep up to the terms of the agreement. It is also asserted that the Council is now disposed to look with favor upon the application of Beverly T. Crump, and his associates of the Southern Fuel Gas Company, who say they are anxious to put in a gas plant of their peculiar type. They are promising great things, but we incline to the view that their performances will be far short of what may reasonably now be called their predictions. In the meantime, it seems strange that some reputable firm of gas works builders does not make an effort to secure the Manchester franchise; for the city is ready to give liberal encouragement to such an enterprise, and we have no doubt that a gas plant there would pay a fairly liberal return on the investment.

WE are indebted to "Observer" for the following respecting the life of the late Mr. Austin M. Copp, of Malden, Mass., whose genial personality justly caused him to be a great favorite in Eastern gas circles: "It is my sad duty to report the death of Mr. Austin M. Copp, (to me personally known for many years), of Malden, Mass., whose demise occurred at his home on Clinton street, Malden, on the afternoon of November 1. About two years ago deceased experienced a severe attack of what is known as *la grippe*, the permanent outcome of which was the quickening of a latent heart affection that finally ended his life. The local notices of his life show that Mr. Copp was born in the town of

Saugus, Essex County, Mass., on July 7, 1842. He was educated at the Greenwich (R. I.) Academy, and on leaving there he entered the dry goods store of H. A. Newhall, at the corner of Main and Pleasant streets. At the breaking out of the Civil War, he enlisted and joined camp at Readville, but was ultimately rejected by reason of liability to heart trouble. Subsequently he went to Washington, and from there to Illinois. He again enlisted in Illinois, only to be rejected because of the reason that debarred him from the service in Massachusetts. Returning to Malden, Mr. Copp was again employed in Newhall's store, but remained there only a short time, Mr. Frederic H. Odiorne having offered him a position in his employ—Mr. Odiorne then as now being engaged in the wholesale coal business. Entering Mr. Odiorne's service as a clerk, in 1864, in 1872 deceased was admitted to partnership in the firm, retaining his interest there up to his death. The firm of Odiorne & Co. was prominently identified with the gas coal trade of the East, and as a natural result of this intercourse, Mr. Copp eventually became interested financially in several of the Eastern gas companies. He was Treasurer and Manager of the Plymouth (Mass.) and the Exeter (N.H.) Gas Companies, and for several years was prominent in the Board of Directors of the Malden and Melrose (Mass.) Company.* He had also been Treasurer and Manager of the Rockland and Thomaston (Me.) Company. All of these companies owe much to his advice and clever business methods for their success. He was a member of the American Gas Light Association, having been elected thereto in 1883, and was also a prominent member of the New England Association of Gas Engineers. I am not sure as to his membership in the Guild of Gas Managers,† but I do know that he was always welcomed at its headquarters. He was a genial, generous, wholesouled man, whose friendship was prized by those who held it. In 1872 he was united in marriage to Jennie Ballou Morandi, a daughter of the late Francis Morandi, in his day a prominent resident of Malden. Mr. Copp always took a positive interest in the local affairs of Malden. He was a Trustee of the Malden Savings Bank and a prominent member of the Malden Club. At the time that the Forestdale Cemetery was purchased by the city, Mr. Copp was chosen to the Board of Trustees, who in turn elected him Secretary, a position that he held up to his death. He will be held in affectionate remembrance by many, for he was a sincere friend and an upright gentleman."

THE following are the rates charged by the Bath (Me.) Gas and Electric Light Company: Gas division—Residences, churches and offices, $2.75 per 1,000 cubic feet; stores, hotels and depots, $2.50 per 1,000; fuel gas, $1.50 per 1,000. Electric division, service until 10 P.M. each night, per lamp per annum:

	10 C. P.	16 C. P.	25 C. P.	50 C. P.	100 C. P.	150 C. P.
Banks and offices, and drygoods, shoe, grocery, jewelry, tailor, clothing, crockery, hardware, and barber shops	$7 50	$9	$13 50	$25	$48 50	$67 50
Drug stores and laundries	8 50	10	15 00	28	54 00	75 00
Stables, saloons and billiard rooms	9 50	11	16 50	31	60 00	87 50
All night services	15 00	18	25 00	45	90 00	135 00

The rates for an electric service to private houses (16-candle power lamp, all night) are as follows: 1 light, $9; 2 lights, $17; 3 lights, $24; 4 lights, $30; 5 lights, $35; 6 lights, $39; 7 lights, $42. Meter rate, 1 cent per ampere hour.

THOSE close to the management of the Baltimore Consolidated Gas Company are positive in their assertions that the next dividend will be at the rate of 5 per cent. per annum.

MR. S. WILBUR SCRANTON, one of the men in charge of the public street lighting service of the New Haven (Conn.) Gas Company, has been obliged to report the stealing of many gas burners from the lanterns. The thefts are made during the daytime, and the lamps that have been visited most frequently are those along St. Ronan and Lawrence streets.

THE Philadelphia *Press*, of the 14th inst., contained the following: "Superintendent of Police Linden on the 12th inst. ordered the arrest of four or five attaches of the 9th ward gas works on the charge of conspiracy to cheat the city by the use of bogus coke checks. Two of the men arrested are Charles Douglas, messenger in the coke office, and Benjamin Ingram, a special officer at the works. The warrants for the arrest of the persons concerned in the conspiracy were issued by Magistrate Pole. They were given to Superintendent Linden, and he gave them to two of his detectives, who had uncovered the alleged swindling game under his direction. The officers arrested six people in all. Four are connected with the gas works, and two were in the steal on the outside. The names of the others in the conspiracy, besides Douglas and Ingram, could not be learned last night, as all of the officials connected with the case declined to give any information. Superintendent Linden would not talk about the case further than to say that there would be a hearing at the Central Station. Mayor Stuart is said to have received word about six weeks ago to the effect that the city was being systematically robbed at the 9th ward gas works by the use of bogus coke checks. The Mayor turned the matter over to Superintendent Linden, with instructions to make a thorough investigation, and if he found the city was being robbed, to arrest every person concerned. Since that time Superintendent Linden has been working on the case. At the outset his men got hold of a bogus coke check, but it took some time to discover who was using the checks and how many persons were connected with the conspiracy. It was not until last week that Superintendent Linden was able to secure the evidence necessary to cause the arrest of Ingram, Douglas and the others. * * * Director Beittler was seen last night, but he said he was not conversant with the details of the case. He said Superintendent Linden had entire charge of it, and had merely reported to him in a general way from time to time the progress he was making. He knew that several arrests had been made, but did not know the names of the implicated parties, nor could he tell the amount of money the city had lost. It was learned, however, from another source, that the amount of the peculations will reach several thousand dollars. The men, it was said, have been using bogus checks to cheat the city for several years. Similar charges were made against certain employees of the 9th ward gas works about a year ago, and an investigation was made at that time, but nothing ever came of it."

A CORRESPONDENT at Paterson, N. J., forwards the following: "The Hackensack (N. J.) Gas Light Company, in addition to other recent improvements, is increasing its distributing capacity six-fold, by laying about 2 miles of large mains from the works along Hudson, Essex and Union streets, a work made necessary by the large addition to the list of patrons since the price of gas was reduced last spring. The Company is also making considerable improvements to its works, and has under consideration the possible necessity of putting in an entire new plant within the next two or three years."

THE works of the Nanaimo (British Columbia) Electric Light Company were sold at auction towards the close of last month. The bid price was $40 in excess of the liens and incumbrances, which amount to $25,000. At this figure it does not seem to us that the purchaser had much the best of the bargain.

"N. Y. P." writing to the JOURNAL under date of Nov. 9th, says: "The Edison Electric Light Company, of North Plainfield, N. J., will have to pay heavy penalties to the borough government, which has enforced the provision in the Company's contract that calls for a double rebate for every unlighted street lamp. For several weeks the number of lamps unlighted has increased, until now the borough officials have decided that the only way to make the Company supply a good service is to enforce the contract penalty. Double the amount charged per lamp will, therefore, be deducted from the Company's bill for each lamp that does not burn with the requisite brilliancy all night and every night."

A CORRESPONDENT at Manchester, N. H., writing to us under date of the 12th inst., says: "I note your reference, in the JOURNAL of the 14th inst., to the increased output of the Keene (N. H.) Company, and to your expression of the possibility that the Company would be obliged to increase its manufacturing plant. As I understand it, the Company, at a meeting of the Directors held a few evenings ago, decided to put in a duplicate plant of the Lowe type, the same to include a new set of purifying apparatus. I believe it was also determined to place the new set in the old retort house."

THE opposition concern at Grand Forks, N. D., which bears the name of the Economic Gas Company, will it is reported, be ready to supply gas on January first. We doubt it. The Company is capitalized in $50,000.

THE New Haven (Conn.) Company's new holder on Railroad avenue is a credit to its constructors, and an invaluable adjunct to the Company.

* Mr. Copp was also a Director in the Citizens Gas Light Company, of Quincy, Mass. Deceased was not a member of The Guild.

A RECENT issue of the San Francisco *Chronicle* says that the formation of the Sacramento County Water Company, which filed articles of incorporation early this month, is another step in the progress of one of the largest and most interesting enterprises in the State. This Company, the recently formed Sacramento Electric Light and Power Company, the American River, Land and Lumber Company, and the old Folsom Water Power Company, which owns the immense dam near the Folsom prison, now about completed, are all practically the same. They differ as legal corporations only. The main stockholders own vast tracts of land and very extensive water rights, and the company just formed will early establish an irrigation system on a very large scale, using the waters of the American river. This Company is capitalized for $2,000,000, and stock to the amount of $1,100,000 has been subscribed. The Directors are Albert Gallatin, A. J. Ralston, Horatio C. Livermore, Charles K. Livermore and John Barker. The Sacramento Electric Light and Power Company, which recently obtained extensive franchises for electric railways and the distribution of electric power in Sacramento, is preparing to utilize the water power of the American river, made available by the great dam, by converting it into electrical power and conveying it to Sacramento, a distance of 20 miles. The Company is now negotiating with several of the largest electric manufacturing companies in the country, and expects that by the first of the year it will close a contract with one of them for the establishment of a great and costly plant for the purpose mentioned. The Company can now command water power to the extent of 10,000 horse power, and this can be increased in the future if needful. About 75 per cent. of the power generated by the river can be made effective in Sacramento. Besides operating its own street car lines with the energy thus transmitted 20 miles by wire, the Company expects to light Sacramento and to supply nearly all the power used in that city. The Southern Pacific Railroad Company is said to be now favorably considering the economic proposition of using this power instead of steam in its shops, where about 2,300 horse power is required. The Company expects to have its plant in complete operation by October, 1893. This will be by far the largest scale upon which water power is transmitted over considerable distances and distributed by converting it into electricity on this coast. Three other notable experiments in the same direction, are at Walla Walla, Wash., Portland, Oregon, and San Bernardino, Cal.

IN our issue for last week, mention was made of the preliminary hearings before the Massachusetts Commission in respect to the petitioners from certain suburban districts, who asked for cheaper gas rates in those districts. In the South Boston instance the following argument was made by Mr. George H. Bond, on behalf of the petitioners: "Before giving any reason as to why we consider the price charged for gas excessive, we desire to know, as citizens of Boston, why we who live in South Boston should be charged more than people who live in the city proper. As you are well aware, the whole gas manufacture of Dorchester, Roxbury, South Boston and the city proper is carried on, in point of fact, by one concern, the Bay State Gas Company. Then, why should we, or the other portions named, be discriminated against? Such a state of things does not exist in any other city in the United States. The entire product of gas is made at the same stations, and yet the Gas Company is permitted to make four distinct prices. At South Boston, however, they still continue to run the old works, presumably on business principles, because they can make and supply the gas cheaper than from the other stations. Then, why should we be charged more than in the city proper? In Providence, where there are more miles of street mains than in Boston, with one third of the output of the city of Boston, the small householder, living five miles from the point of manufacture, gets his gas as cheap as the large store on the main street—$1.30 per 1,000, as cheap as the lowest prices in Boston. There is no discrimination or difference in price there, and in addition the Gas Company has recently agreed to pay the city quite a percentage on the gross receipts for the privilege of using the streets. In all other cities, the Gas Companies treat all consumers alike, and we protest against this discrimination, which calls upon us to pay $1.70 for practically the same gas which is furnished to our neighbors across the bridges for $1.30 per 1,000. The city of Boston taxes us at the same rate as the business men on Washington street, but, regarding our rights as citizens, it gives us all equal privileges, and we believe that it is neither legally nor morally right for the Gas Company to make several prices for one city. When the Bay State Gas Company applied for its charter, it offered, as the strongest point why it should be granted, that the desire was to consolidate the companies (which are now in its possession and control), that it might give cheaper gas and equalize prices. The city of Boston furnishes water to everybody at one price. Why should not the Gas Company do the same? As I have stated before, this difference of price does not exist, nor would be permitted to exist, in any other city where one Gas Company does the business. It would be useless for me to go into the cost of gas or what it ought to be furnished for. It ought to be sold in Boston at $1 per 1,000, and it might then be used for heating and mechanical purposes. What we desire to impress on you is that, as citizens of Boston and taxpayers, we desire to be served alike, and that South Boston should have its gas supply as low as the city proper, whether it be $1.30 or $1 per 1,000."

THE Ogden (Utah) Gas Light and Fuel Company has been awarded a contract for the public lighting of that place, by means of electric lights, for a period of three years.

THE Marlboro (Mass.) *Times*, of the 10th inst., says that the Marlboro Gas Light Company has purchased, of the S. Boyd estate, 178 lots of land on Maple street, to the rear of McLane's foundry. Estimates on the construction of a gasholder, also the construction of suitable building with modern fittings for gas manufacture are being considered by the Company, but the Superintendent (Mr. Macmun) asserts that work on any part of the new plant will not be started until next spring. The land occupied now by the works is on the market. The Company's business has grown to such an extent that it can barely keep pace with the increased use of its products, and enlarged facilities have become an actual necessity.

THE Brookline (Mass.) Company will increase its capital to $650,000 by the issue of 500 new shares. It is likely that a cut in the gas rate will soon be ordered.

THE proprietors of the Fort Wayne Electric Company have declared a dividend of 50 cents per share, made payable on the 15th inst.

Value of Magnesium as a Source of Light.

Mr. Frederick J. Rogers, as the result of what he terms a series of patient investigations, summarizes his researches in respect of the above as follows: (1) The spectrum of burning magnesium, as has already been pointed out by Pickering, approaches much more nearly that of sunlight than does the spectrum of any other artificial illuminant. (2) The temperature of the magnesium flame, about 1,340° C., lies between that of the Bunsen burner and that of the air blast lamp, although the character of its spectrum is such as would correspond to a temperature of nearly 5,000° C., were its light due to ordinary incandescence. (3) The "radiant efficiency" (the ratio of luminous energy to total radiant energy) is 13½ per cent., a value higher than that for any other artificial illuminant (excepting, perhaps, the light of the electric discharge in vacuo, for which Dr. Staub, of Zurich, has found an efficiency of about 34 per cent.). (4) The radiant energy emitted by burning magnesium is about 4,630 calories per gramme of the metal burned, or 75 per cent. of the total heat of combustion, as compared with 15 per cent. to 20 per cent. in the case of illuminating gas. (5) The thermal equivalent of 1-candle power minute of magnesium light is about 2.5 lesser calories, as against 3.5 to 4.0 for other artificial illuminants. (6) The total efficiency of the magnesium light is about 10 per cent. as compared with a quarter of 1 per cent. for illuminating gas. (7) Taking into consideration the greater average luminosity of the rays of the visible spectrum of the magnesium flame, it is certain that per unit of energy expended, the light giving power of burning magnesium is from 50 to 60 times greater than that of gas.

New Pipettes for Measuring Liquids.

A new pipette for measuring volumes of liquids has been brought out by M. Roy before the Societe Industrielle, of Rouen. Every one who uses the ordinary form of pipette knows how difficult it is to obtain the exact volume of fluid, and it is to overcome this difficulty that M. Roy's new pipette has been designed. It is made in two parts; one, the portion to contain the measured volume of liquid, being made of the same shape as the old pipette, but made only large enough to hold the required quantity. (If an ordinary pipette be taken, and the stem be cut off at the mark, this portion of M. Roy's pipette will be obtained.) The second portion, which is the novel feature of the instrument, consists of a glass tube with a wide cylinder blown on the end; this cylinder fits over the bulb of the pipette, a tight joint being made by grinding the two contact surfaces; a piece of rubber tubing with a pinchcock and a finger hole in the side of the covering cylinder completes the new instrument. It is used by placing the finger over the side hole, inserting the end of the burette in the liquid of which a known quantity is to be measured, then drawing with the mouth at the other end in the usual way, until the fluid flows over the end of the measuring portion into the cylindrical cover; the pinchcock is then closed, the pipette placed in the vessel into which the liquid has to be delivered, and air admitted through the finger hole in the side, when the liquid in the pipette flows out.

The Market for Gas Securities.

The market for city gas shares was dull and uncertain for the week, Consolidated having averaged between the ups and the downs. The opening price to-day (Friday) was 121¾ to 122, which shows something of an advance over last week. The dividend time will be this month, and it would seem the height of absurdity to presume that an increase over the normal rate will be ordered, in face of the fact that the Legislature will soon be in session. If the best interests of the gas consumers and the gas companies of the State are to be preserved, there will be no increase in dividends—of course, a stock increase is another matter. Other city shares are slow and uneven.

In Brooklyn the situation is unchanged, but different conditions must speedily crop out. Fulton-Municipal is weaker, and the General's son ought to keep track of his father. Chicago gas is weaker and dull. It is a purchase. There is no change of moment in Baltimore Consolidated, even though the offering rate is returned at 60. It is worth more money, and it cannot be bought at 60. At auction, 30 shares Fulton Municipal, at 131½. The general situation is slow.

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OFFICE OF THE AMERICAN GAS COMPANY,
222 South Third Street, Phila., Pa, Nov. 16, 1892.

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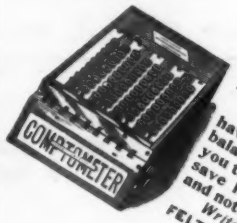

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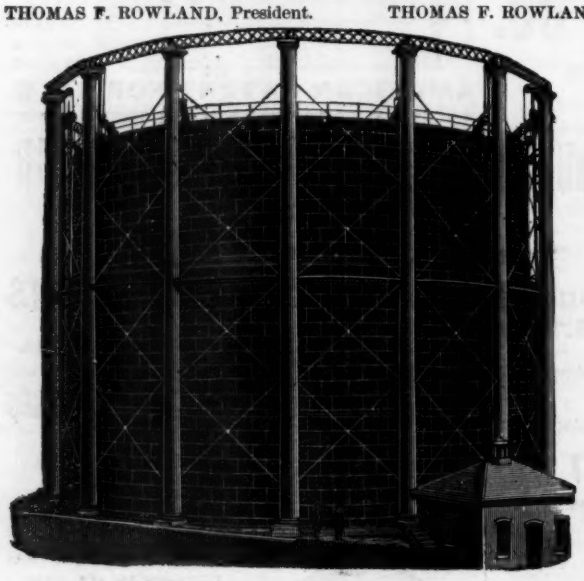

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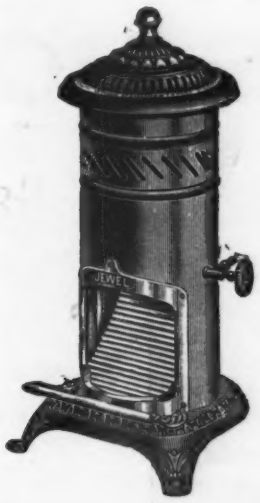

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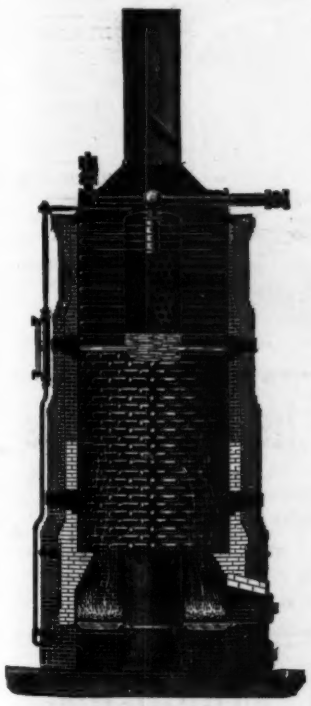

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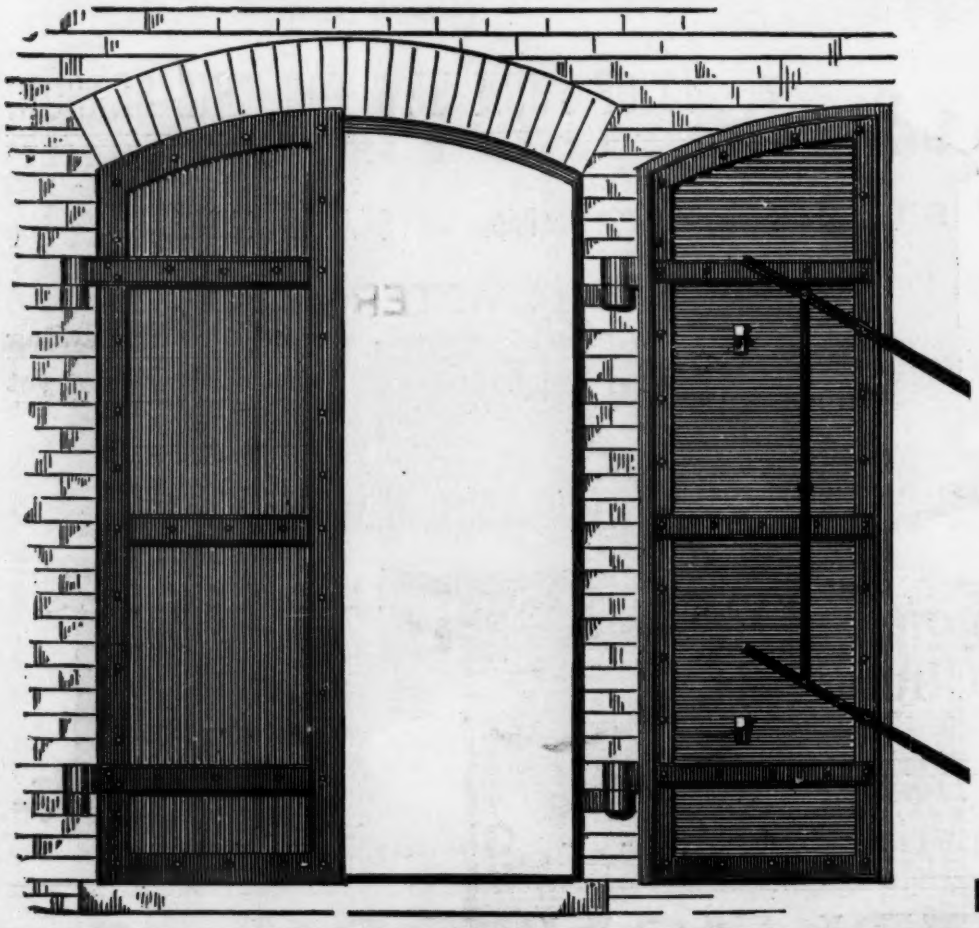

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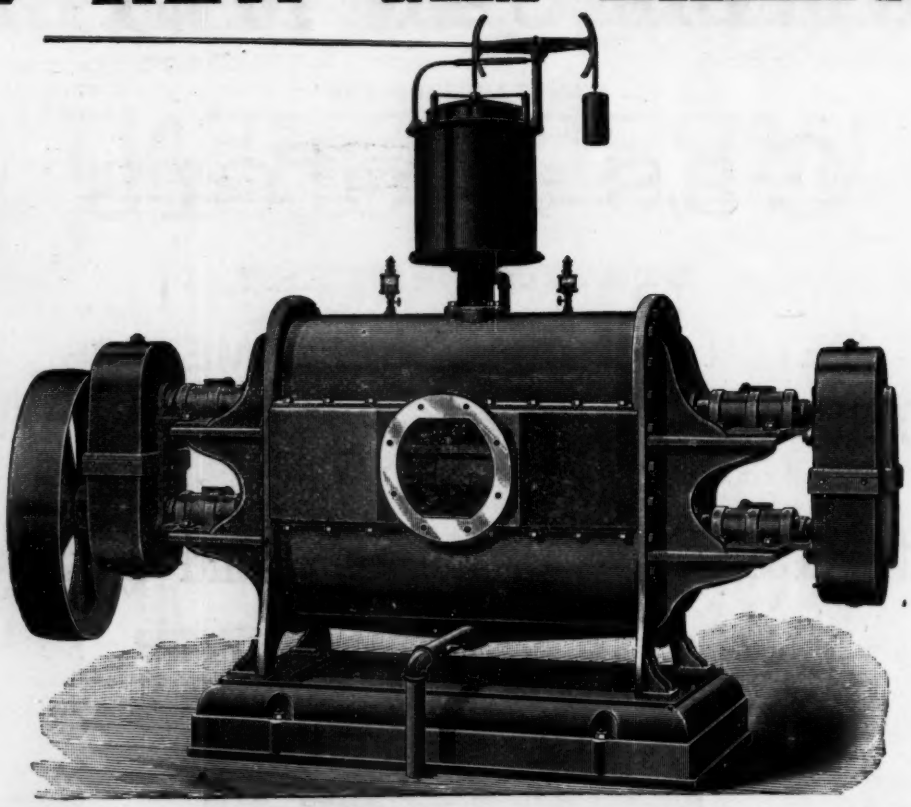

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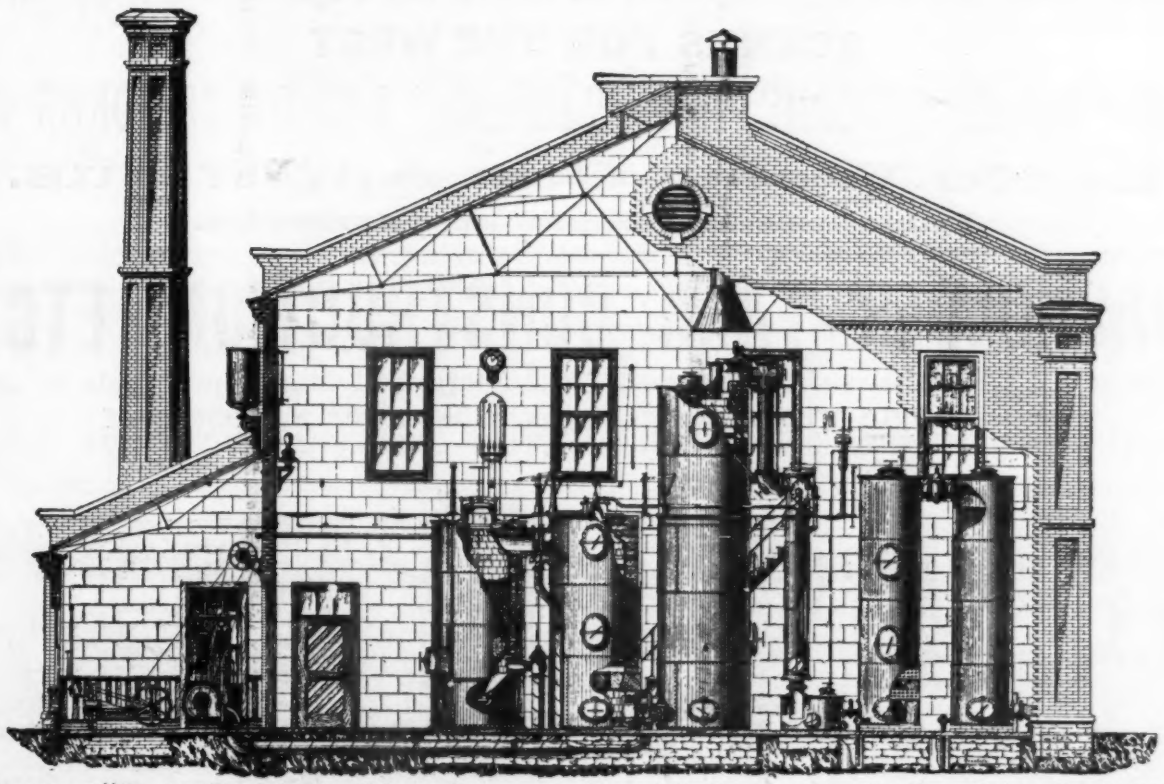

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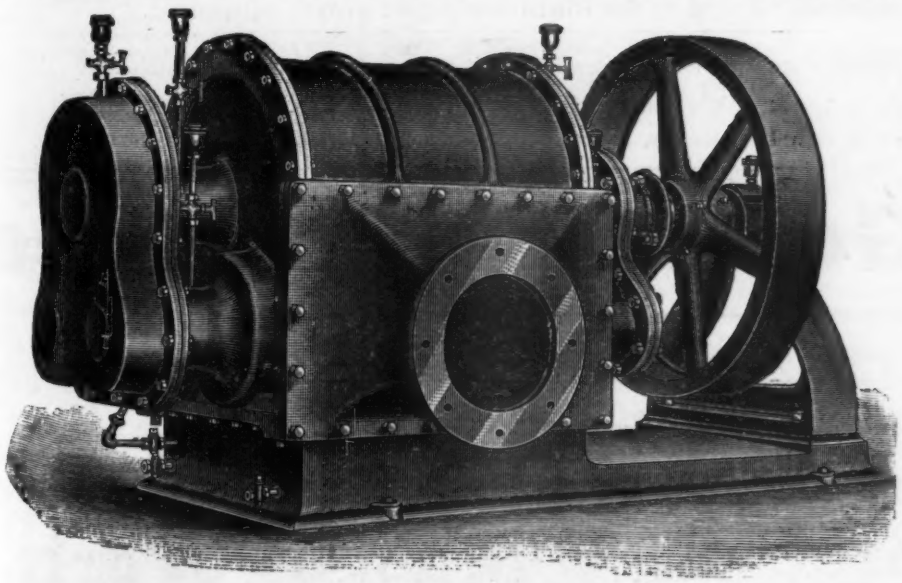

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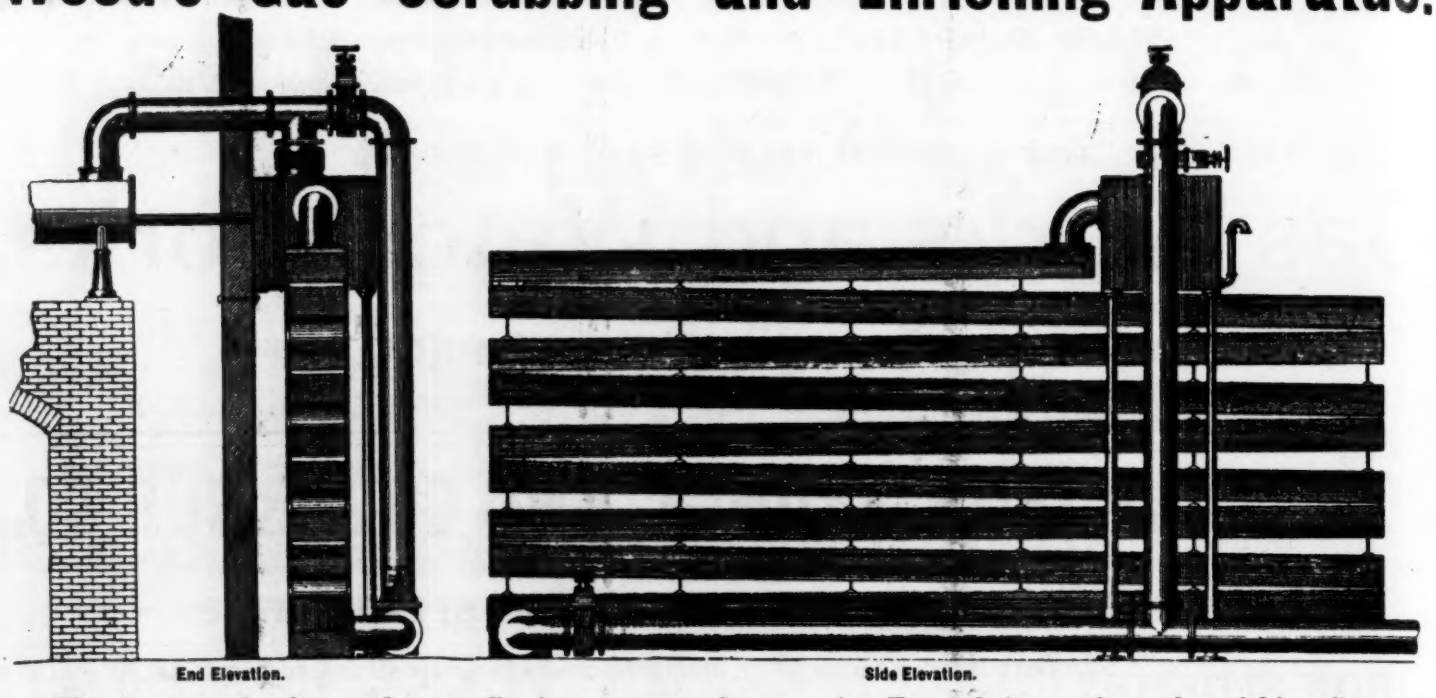

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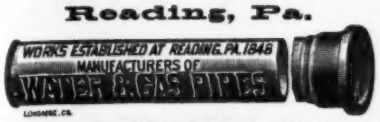

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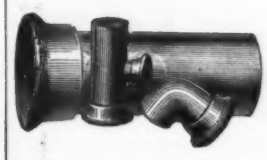

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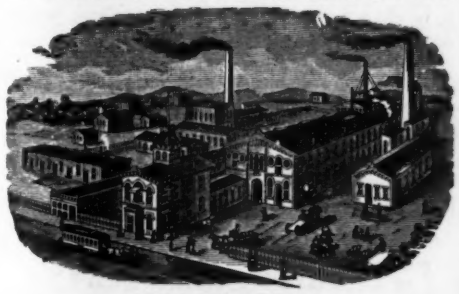

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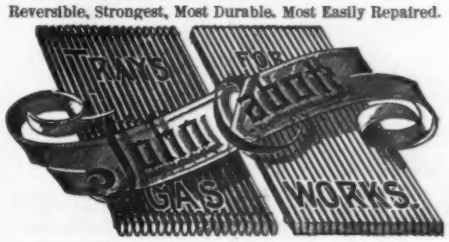

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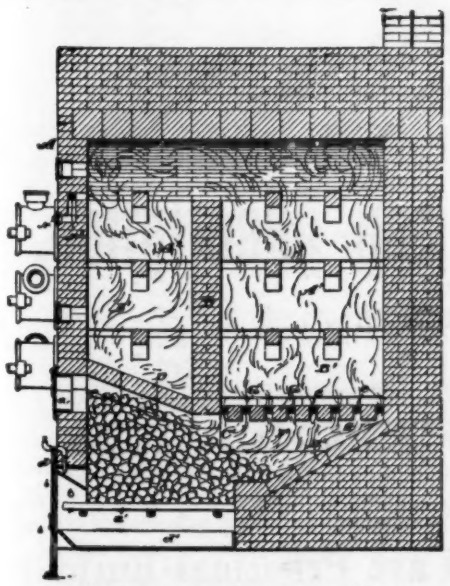

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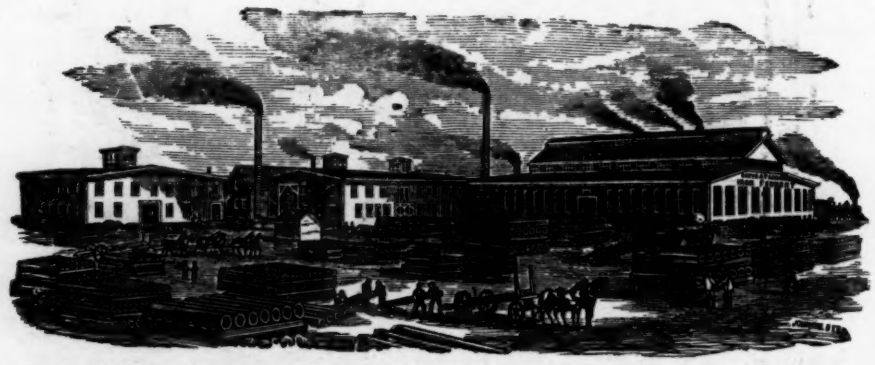

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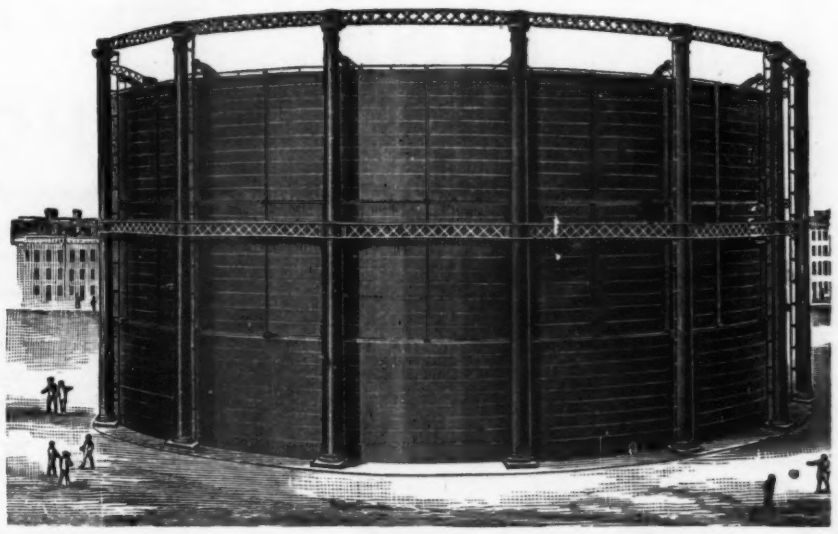

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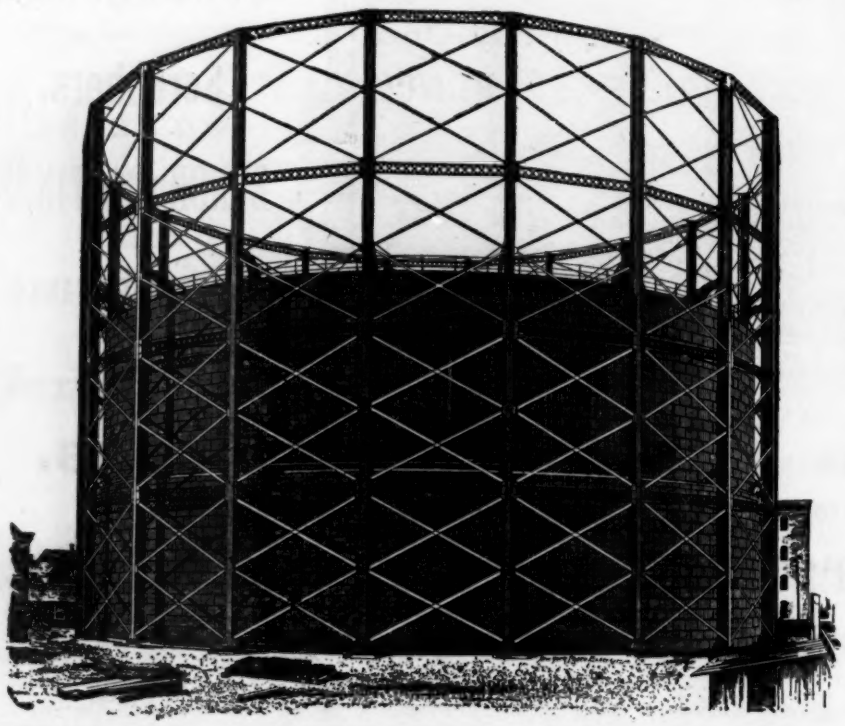

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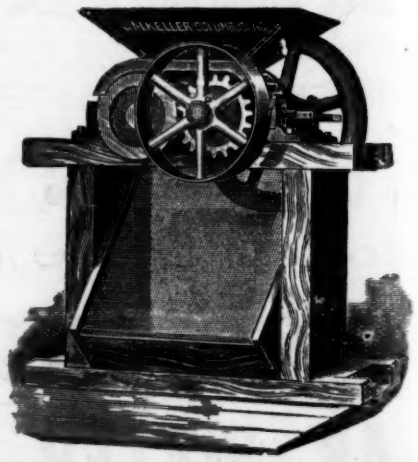

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The superior feature of this meter is that it avoids the danger of displacement of the valves, and consequent loss of gas, either in shipping, handling, or by dishonest consumers.

To designate from the regular Glover Meter, also made by us, we style the above the HEARNE-GLOVER Meter.

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The Most Economical, Efficient, and Durable Gas Stove Made.

	SIZE.		
Stove.	*Oven.*	*Broiler.*	*Top.*
31 inches high.	9¼ inches high.	10 inches high.	21 inches high.
17 inches wide.	15 inches wide.	15 inches wide.	16 inches wide.
	12¾ inches deep.	12¾ inches deep.	
	Length over extension shelves, 32 inches.		

This Stove has three Boiling Burners in the Top or Hot Plate, and single Oven Burner.

The consumption of this Stove is 35 cubic feet per hour, at 1½ inch pressure with all burners.

Three-eighth inch supply pipe should be used when the pressure is 1½ inches or over.

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